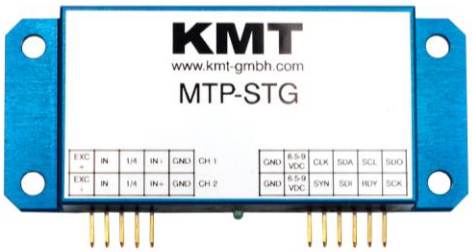
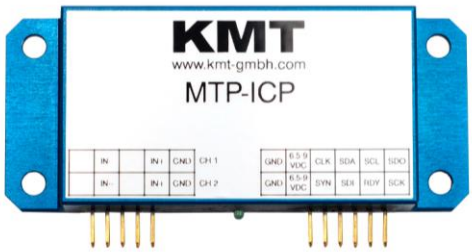
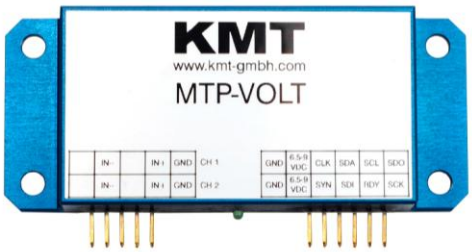
User Manual

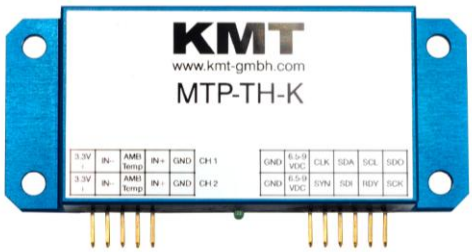
MTP

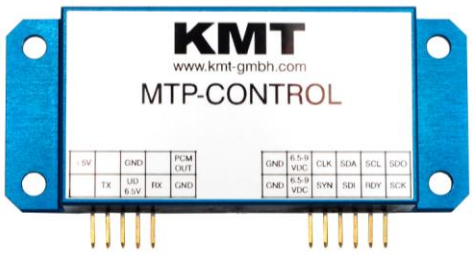
Multi channel telemetry system for rotating application, full software programmable with 16 bit resolution











INSTRUCTIONS FOR QUALIFIED PERSONNEL ONLY!

- 2 to 64 channel
- Signal bandwidth 0-24000Hz
- Inputs for STG, TH-K, ICP or VOLT
- STG - Auto Zero calibration
- 4V bridge Excitation
- Gain 125-250-500-1000-2000
- 16 bit ADC, simultaneous sampling
- Full software programmable
- Inductive or battery power
- Rugged housing, water protected
- Output analog +/- 10V
- Digital data interface to PC

Safety notes

- The device should only applied by instructed personnel.
- The power head emits strong magnetic radiation at 30-60 kHz to a distance of 300 mm. Therefore persons with cardiac pacemakers should not work with this device!
- Magnetic data storage media should be kept in a distance of at least 3m from the power head to avoid data loss. The same is valid for electromagnetic sensitive parts, devices and systems.
- Do not place the power head in the switched-on state on metallic objects, because this results in eddy currents which could overload the device and strong heat up small objects. Also the probe could be destroyed!
- No metallic objects, other than the disc-type coil, should be located in the air gap of the power head. The same applies to metallic parts within a radius of up to 50 mm in all directions.
- Do not use damaged or faulty cables!
- Never touch in the area between shaft and inductive head, the rotating shaft itself or rotor electronic contacts during operation!
- This is a “Class A” system suitable for operation in a laboratory or industrial environment. The system can cause electromagnetic interferences when used in residential areas or environments. In this case the operator is responsible for establishing protective procedures.

Short description:

The MTP telemetry is a small and flexible telemetry system for rotating applications. Each sensor module (2-channel) is equipped with signal conditioning, anti-aliasing filters, analog-to-digital converters and a digital output. All these up to 32 modules (=64 channels) will controlled by MTP-Controller module. By this concept it's possible to install the acquisition modules close to the sensor to have short connections for the analog sensor lines. This avoids an undesired coupling of disturbances resulting in noisy signals. The interference insensitive digital outputs then can lead over wider distances of up to 25cm module to module. The MTP-Controller output is a PCM bit stream signal which can be modulated for emission by a transmitter module for distances of up to 0.1 with inductive telemetry transmission or up to 10m with radio telemetry transmission. Suitable for wireless data transmission rates of 312.5kbit/s up to 5000kbit/s

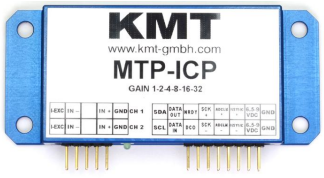
MTP acquisition modules (rotor side)

80 x 34 x 14 mm
Weight 60 grams

MTP-STG-V3
Acquisition module for 2 strain gages
Full, half and quarter bridge (≥350Ω)
Fixed excitation 4V DC
Offset calibration by auto zero
Manual offset shifting after auto zero
Gain: 125-250-500-1000-2000
Test shunt-cal step
Signal bandwidth 0Hz to 24000Hz*
(*see table of cut-off-frequency)
Resolution 16bit
Accuracy <0.2%
Powering: 6.5-9V DC
Current consumption with full bridge 350 ohm 75mA
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

80 x 34 x 14 mm
Weight 60 grams

MTP-VOLT-V3
Acquisition module for 2x high level inputs
Range: ±0,625V, ± 1,25V, ±2,5V, ± 5V, ±10V
Signal bandwidth 0Hz to 24000Hz*
(*see table of cut-off-frequency)
+4V sensor excitation max. 20mA
Resolution 16bit
Accuracy <0.2%
Powering: 6.5-9V DC
Current consumption 60mA
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g



80 x 34 x 14 mm
Weight 60 grams

MTP-ICP®
Acquisition module for 2 ICP sensors
Current EXC. 4mA
Gain: 1-2-4-8-16-32
Signal bandwidth 3 Hz to 24000Hz*
(*see table of cut-off-frequency)
Resolution 16bit
Accuracy <0.2%
Powering: 6.5-9V DC
Current consumption 100mA
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

80 x 34 x 14 mm
Weight 60 grams

MTP-TH-K
Acquisition module for 2x TH-K
Inputs galvanic isolated
Range -50 to 1000°C, -50 to 500°C or -50 to 250°C
Cut-off filter 30Hz (more on request)
Resolution 16bit
Accuracy: 0.2% at 1000°C range
Powering: 6.5-9V DC
Current consumption 110mA
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

Additional environmental

Operating Temperature -20 – +80°C
Storage Temperature -30 – +90°C
Humidity 100%

80 x 34 x 14 mm
Weight 60 grams

MTP-CONTROL
Controller 1- 32 acquisition modules
Output: PCM
Programmable via LAN adapter
Powering: 6.5-9V DC
Current consumption 40mA, with LAN-adapter 140mA
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

Cut off frequency from anti-aliasing filter (-3dB) and sampling rate (red)

Bit rate	2 Channels	4 Channels	8 Channels	16 Channels	32 Channels	64 Channels
5000 kbit/s*	-----	24000 Hz max. (62500 Hz)	12000 Hz (31250 Hz)	6000 Hz (15625 Hz)	3000 Hz (7812.5 Hz)	1500 Hz (3906.25 Hz)
2500 kbit/s	24000 Hz max. (62500 Hz)	12000 Hz (31250 Hz)	6000 Hz (15625 Hz)	3000 Hz (7812.5 Hz)	1500 Hz (3906.25 Hz)	750 Hz (1953.125 Hz)
1250 kbit/s	12000 Hz (31250 Hz)	6000 Hz (15625Hz)	3000 Hz (7812.5 Hz)	1500 Hz (3906.25 Hz)	750 Hz (1953.125 Hz)	375 Hz (976.56 Hz)
625 kbit/s	6000 Hz (15625 Hz)	3000 Hz (7812.5 Hz)	1500 Hz (3906.25 Hz)	750 Hz (1953.125 Hz)	375 Hz (976.56 Hz)	190Hz (488.28 Hz)
312,5 kbit/s	3000 Hz (7812.5 Hz)	1500 Hz (3906.25 Hz)	750 Hz (1953.125 Hz)	375 Hz (976.56 Hz)	190 Hz (488.28 Hz)	95 Hz (244.14 Hz)

For 4 Channels: 32 bit Barker Synch Code + 4x16 bit Data + 4x16 bit Data + 4x16 bit Data + 4x16 bit Data + 32 bit reserved

For 8 Channels: 32 bit Barker Synch Code + 8x16 bit Data + 8x16 bit Data + 32 bit reserved

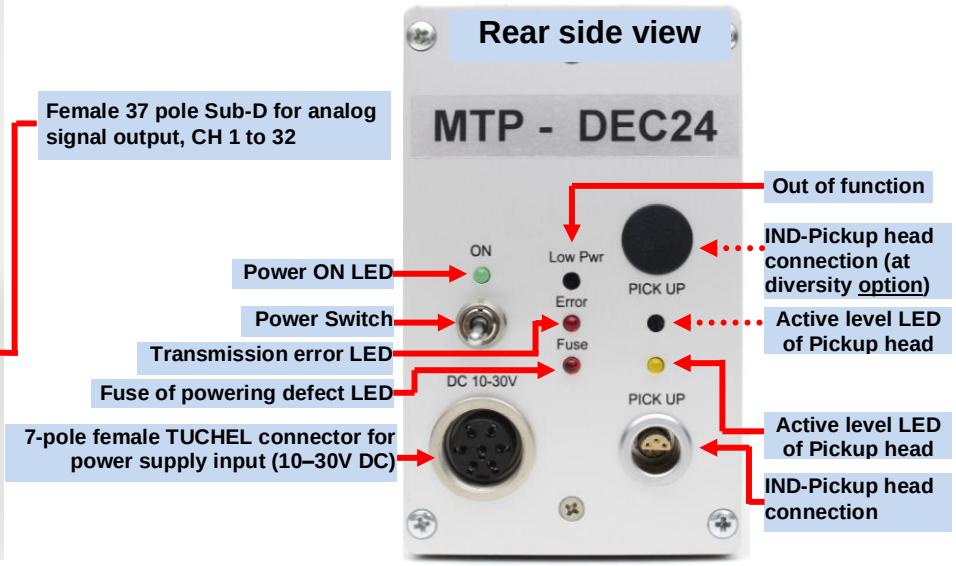
For 16 Channels: 32 bit Barker Synch Code + 16x16 bit Data + 32 bit reserved

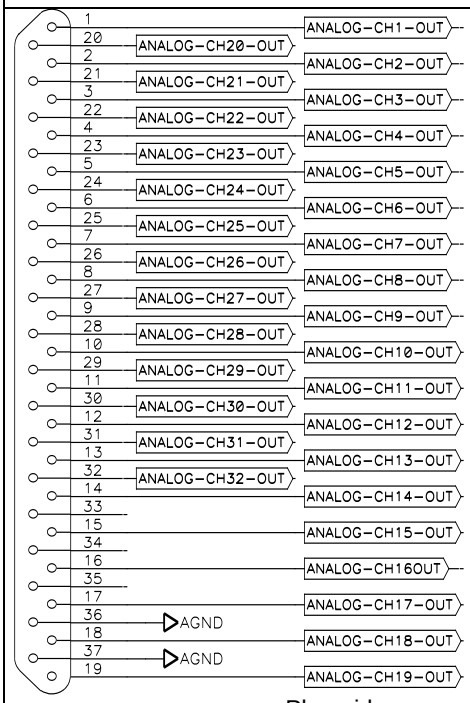
For 32 Channels: 32 bit Barker Synch Code + 16x16 bit Data + 32 bit reserved (Frame Nr.1 = CH1..Ch16) +
32 bit Barker Synch Code + 16x16 bit Data + 32 bit reserved (Frame Nr.2 = CH17..Ch32)

For 64 Channels: 32 bit Barker Synch Code + 16x16 bit Data + 32 bit reserved (Frame Nr.1 = CH1..Ch16) +
32 bit Barker Synch Code + 16x16 bit Data + 32 bit reserved (Frame Nr.2 = CH17..Ch32) +
32 bit Barker Synch Code + 16x16 bit Data + 32 bit reserved (Frame Nr.3 = CH33..Ch48) +
32 bit Barker Synch Code + 16x16 bit Data + 32 bit reserved (Frame Nr.4 = CH49..Ch64)

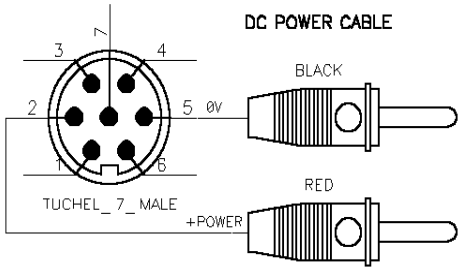
*only with new radio telemetry, not with inductive telemetry!

MTP-DEC8/16/32 Receiver unit for max 32 Channels output via 37 pol. Sub D (inductive transmission 45MHz version)





Plug-side

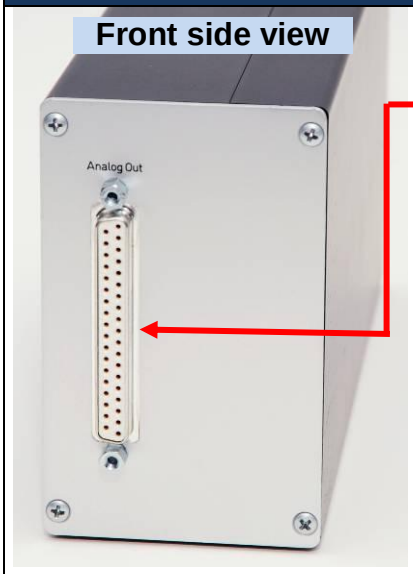


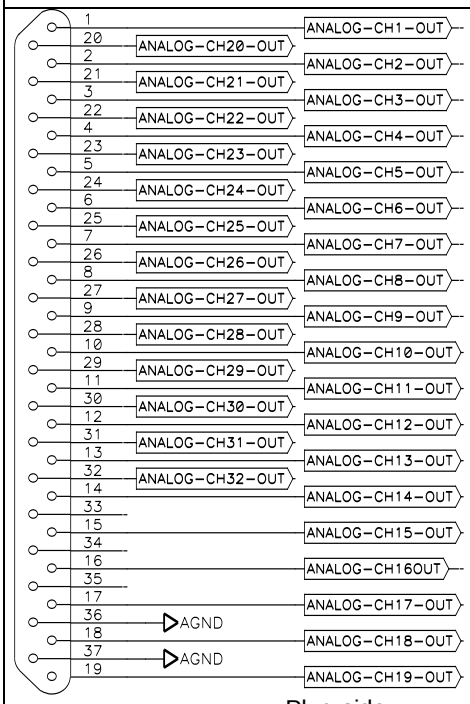
Optional BNC16/32 Box. Connect on 37pol Sub-D

MTP –DEC8/16/24/32 System Parameters:

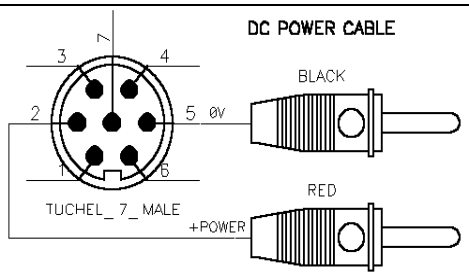
Channel:	8,16 or 32x +/-10V analog outputs via Sub-D male socket
Resolution:	16 bit D/A converter, with smoothing filter
Power supply input:	10-30 VDC, power consumption <24 Watt
Transmission:	Digital PCM Bi-Phase Format – FSK, receiver
Dimensions:	205 x 105 x 65mm
Weight:	1.25 kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.25% without sensor influences
Environmental	
Operating:	-20 … +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g
Static acceleration:	10g in all directions
Shock:	100g in all directions

MTP-DEC8/16/32 Receiver unit for max 32 Channels output via 37 pol. Sub D (radio transmission version with diversity receiver 320-1280kbit)





Plug-side



Optional BNC16/32 Box. Connect on 37pol Sub-D

MTP –DEC8/16/24/32 System Parameters:

Channel:	8,16 or 32x +/-10V analog outputs via Sub-D male socket
Resolution:	16 bit D/A converter, with smoothing filter
Power supply input:	10-30 VDC, power consumption <24 Watt
Transmission:	Digital PCM Bi-Phase Format – FSK,
Dimensions:	205 x 105 x 65mm
Weight:	1.25 kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.25% without sensor influences
Environmental	
Operating:	-20 … +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g
Static acceleration:	10g in all directions
Shock:	100g in all directions

MTP-STG - Acquisition module for 2 channels strain gages (STG)

KMT
www.kmt-gmbh.com
MTP-STG
GAIN 125-250-500-1000-2000
EXC + IN - 1/4 IN + GND CH 1
EXC + IN - 1/4 IN + GND CH 2
GND 6.5-9 VDC CLK SDA SCL SDO
GND 6.5-9 VDC SYN SDI RDY SCK

STG connection for 2 channels

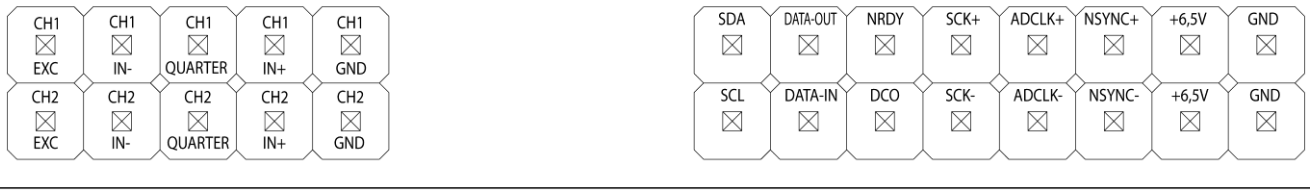
Status LED ON = Error

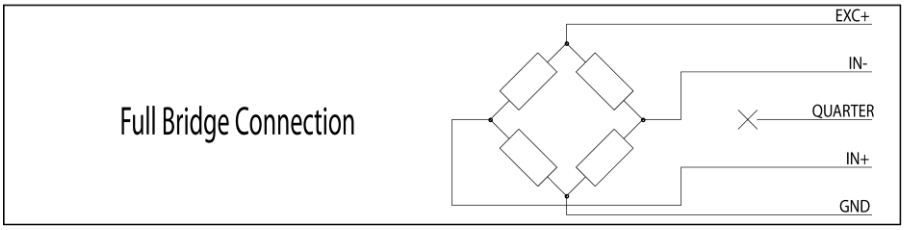
Powering and digital bus I/O

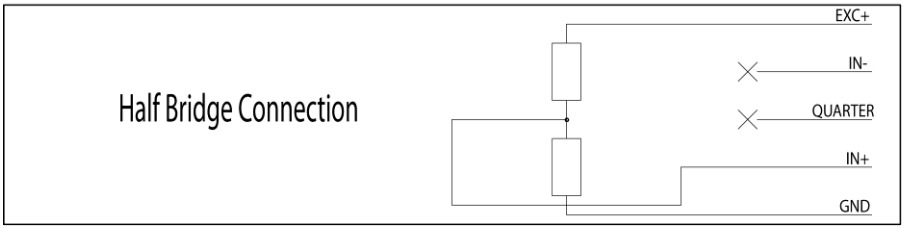
MTP-STG-V3
Acquisition module for 2 strain gages
Full, half and quarter bridge (≥350Ω)
Fixed excitation 4V DC
Offset calibration by auto zero
Manual offset shifting after auto zero
Gain: 125-250-500-1000-2000
Test shunt-cal step (about 80% from measuring range at GAIN 2000)
Signal bandwidth 0Hz to 24000Hz*
(*see table of cut-off-frequency)
Resolution 16bit
Accuracy <0.2%
Powering: 6.5-9V DC
Current consumption with full bridge 350 ohm 75mA
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

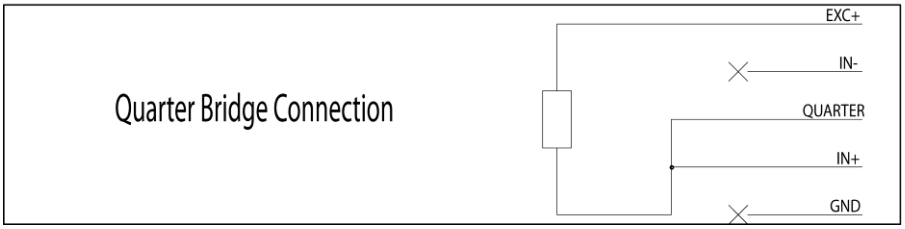
Gain and STG-Sensitivity (output +/-10V at decoder)
Gain 125 = +/-20mV/V
Gain 250 = +/-10mV/V
Gain 500 = +/-5mV/V
Gain 1000 = +/-2.50mV/V
Gain 2000 = +/-1,25mV/V

STG2 Modul Sensor and Bus Connections

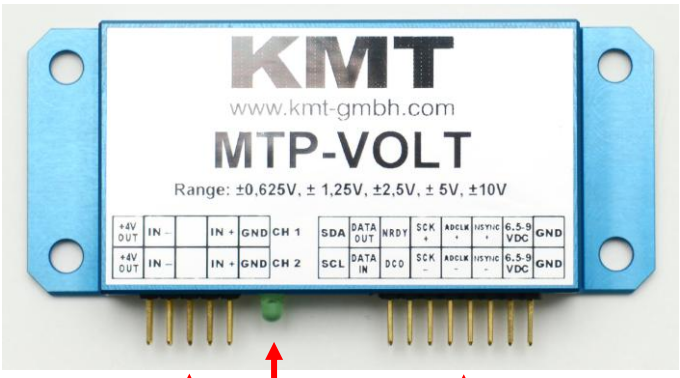








MTP-VOLT - Acquisition module for 2 channels high level inputs



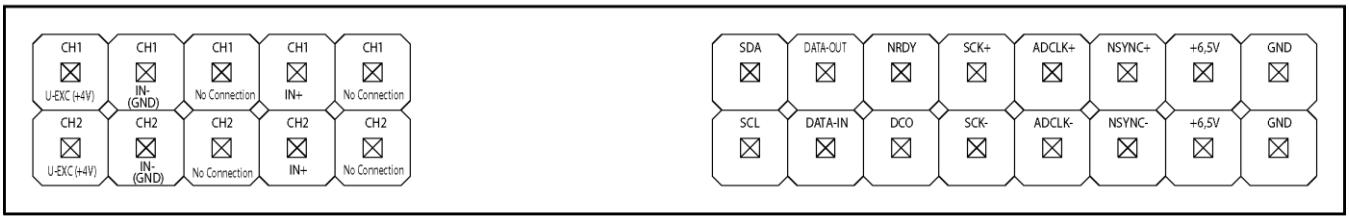
VOLT connection for 2 channels

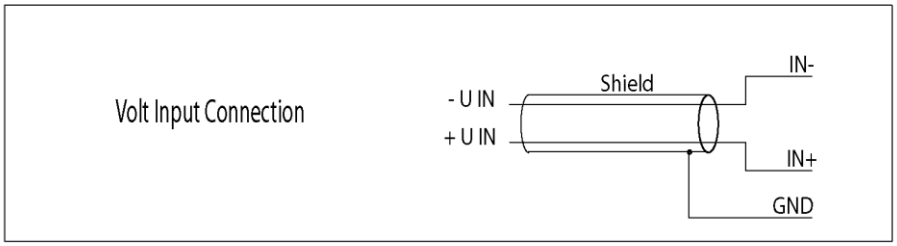
Status LED ON = Error

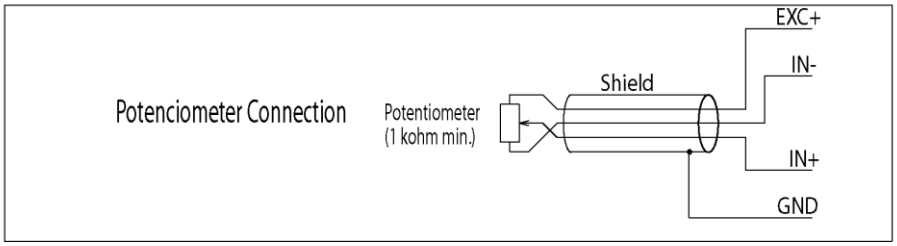
Powering and digital bus I/O

MTP-VOLT-V3
Acquisition module for 2x high level inputs
Range: ±0,625V, ± 1,25V, ±2,5V, ± 5V, ±10V
Signal bandwidth 0Hz to 24000Hz*
(*see table of cut-off-frequency)
Add. +4V sensor excitation **max. 20mA**
Resolution 16bit
Accuracy <0.2%
Powering: 6.5-9V DC
Current consumption 60mA
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

VOLT2 Modul Connection

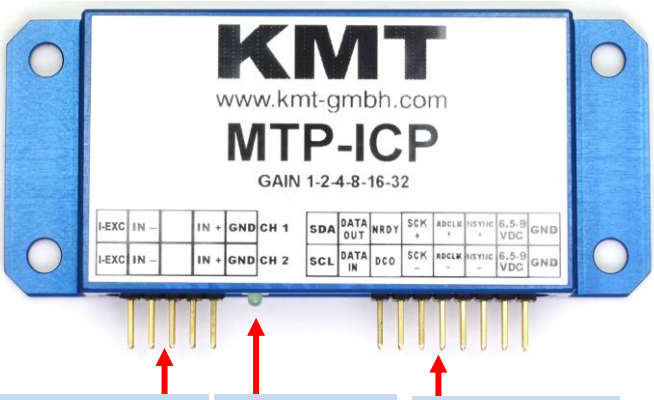






Shield only for noisy environmental (GND)

MTP-ICP - Acquisition module for 2 channels ICP sensor



ICP connection for 2 channels

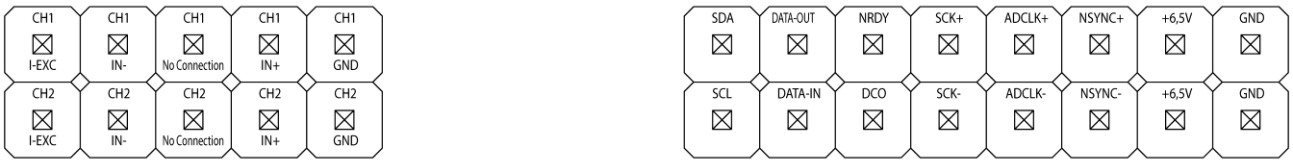
GND only for optional cable shield!

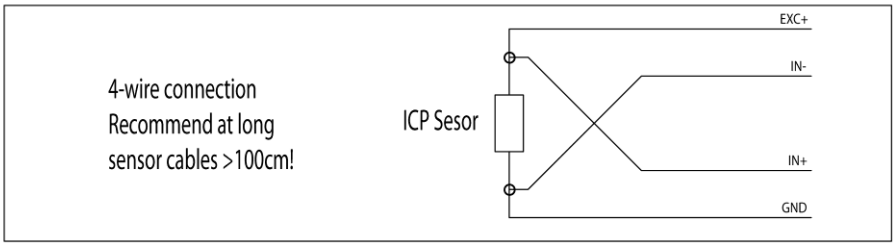
Status LED ON = Error

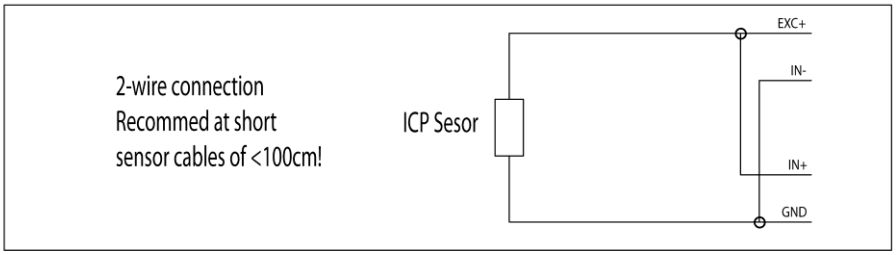
Powering and digital bus I/O

MTP-ICP®
Acquisition module for 2 ICP sensors
Current EXC. 4mA
Gain: 1-2-4-8-16-32
Signal bandwidth 3 Hz to 24000Hz*
(*see table of cut-off-frequency)
Resolution 16bit
Accuracy <0.2%
Powering: 6.5-9V DC
Current consumption 100mA
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

ICP2 Modul Sensor Connections

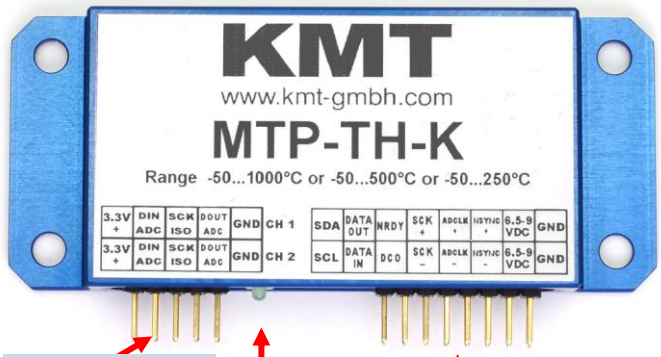






Shield only for noisy environmental (GND)

MTP-TH-K - Acquisition module for 2 channels thermo couples



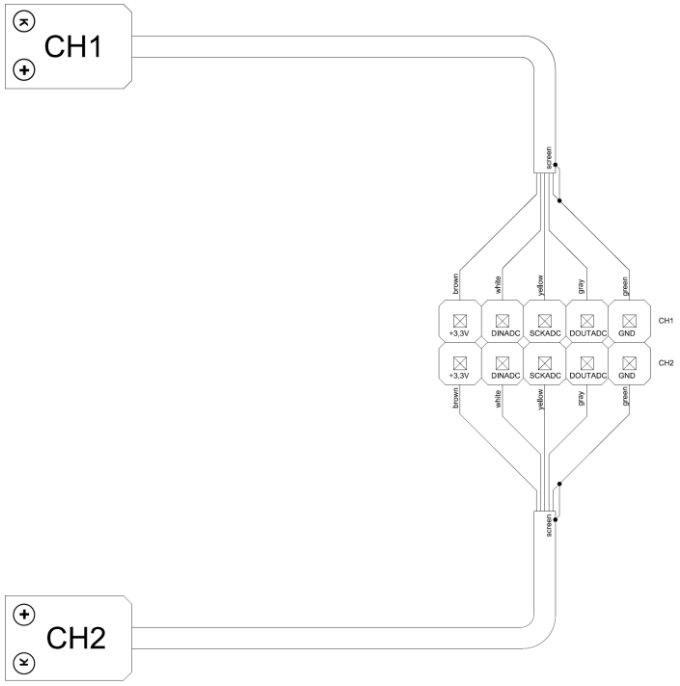
TH-K compensation plate connection for 2 channels

Status LED ON = Error

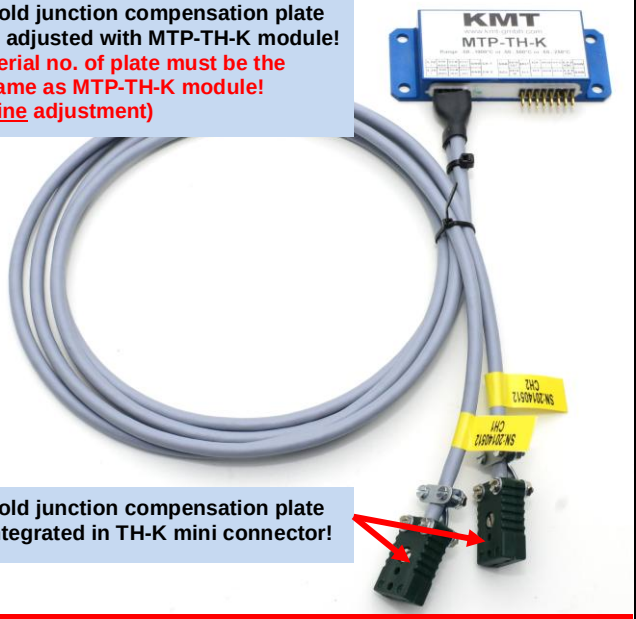
Powering and digital bus I/O

MTP-TH-K
Acquisition module for 2x TH-K
Inputs galvanic isolated
Range -50 to 1000°C, -50 to 500°C or -50 to 250°C
Cut-off filter 30Hz (standard) more on request
Resolution 16bit
Accuracy: 0.2% at 1000°C range
Powering: 6.5-9V DC
Current consumption 110mA with cold junction compensation plate
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

TH-K pin assignment



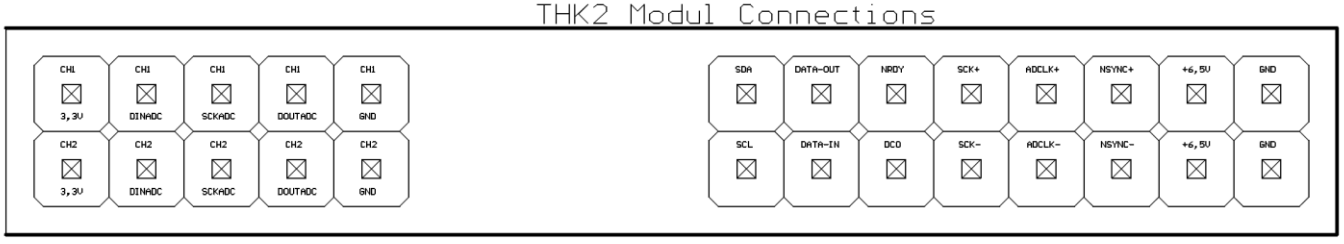
Cold junction compensation plate is adjusted with MTP-TH-K module!
Serial no. of plate must be the same as MTP-TH-K module!
(fine adjustment)

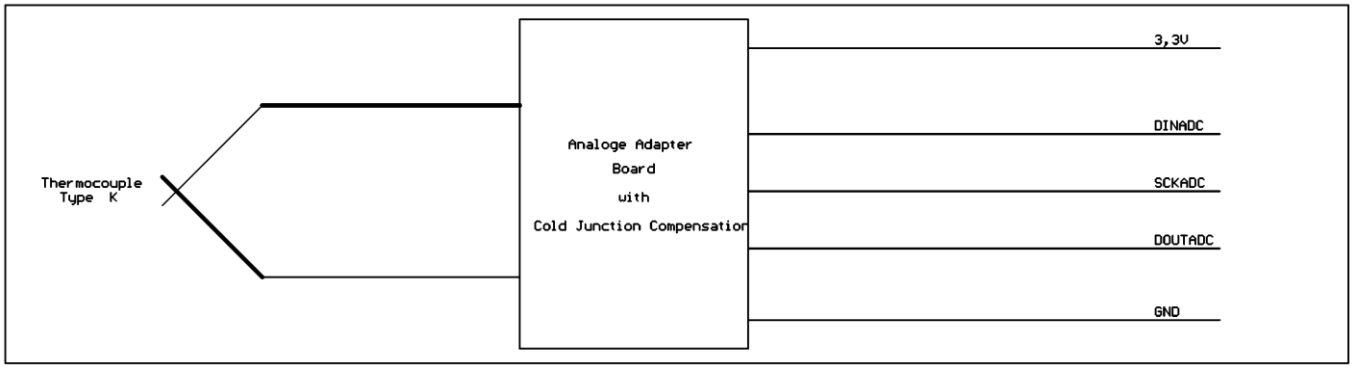


Cold junction compensation plate integrated in TH-K mini connector!

Caution: Cablel length between MTP-TH-K module and compensation plate can be max. 100cm, factory standard length is 20cm! Shield cable, shield must connect on GND!!

THK2 Modul Connections





MTP-TH-K - Temperature range table

Temperature measuring range type K: -50°C to +1000°C

Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]
-50	-0.50	250	2.50	550	5.50	850	8.50
0	0.00	300	3.00	600	6.00	900	9.00
50	0.50	350	3.50	650	6.50	950	9.50
100	1.00	400	4.00	700	7.00	1000	10.00
150	1.50	450	4.50	750	7.50		
200	2.00	500	5.00	800	8.00		

Temperature measuring range type K: -50°C to +500°C

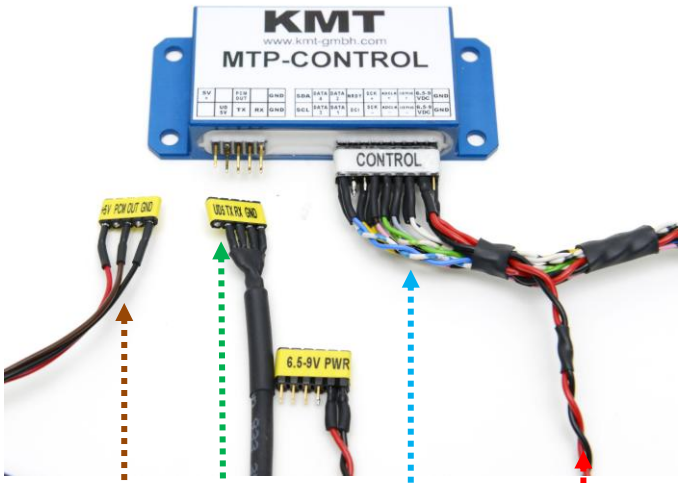
Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]
-50	-1.00	100	2.00	250	5.00	400	8.00
0	0.00	150	3.00	300	6.00	450	9.00
50	1.00	200	4.00	350	7.00	500	10.00

Temperature measuring range type K: -50°C to +250°C

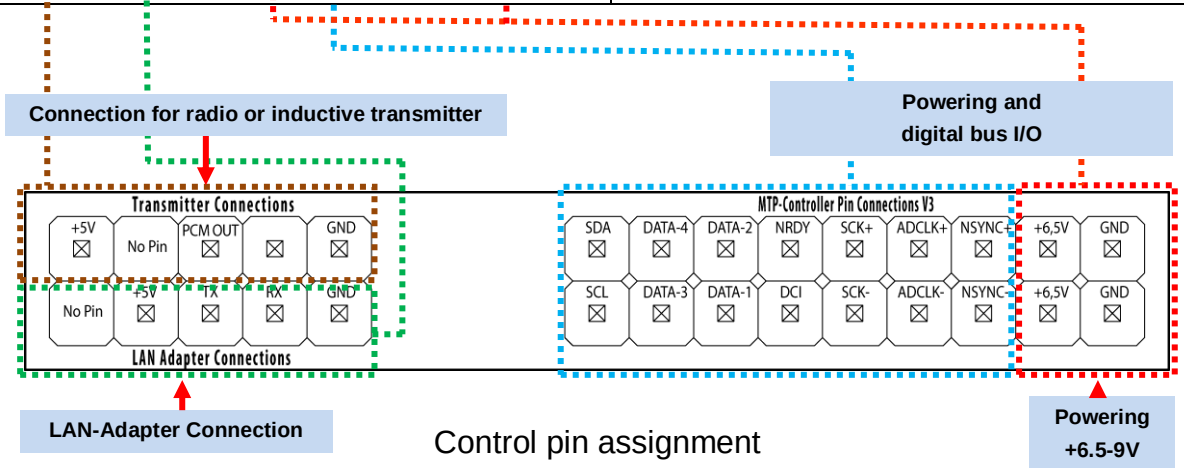
Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]
-50	-2.00	150	6.00				
0	0.00	200	8.00				
50	2.00	250	10.00				
100	4.00						

If no thermocouple is connected or the connection broken, the output is -10V!

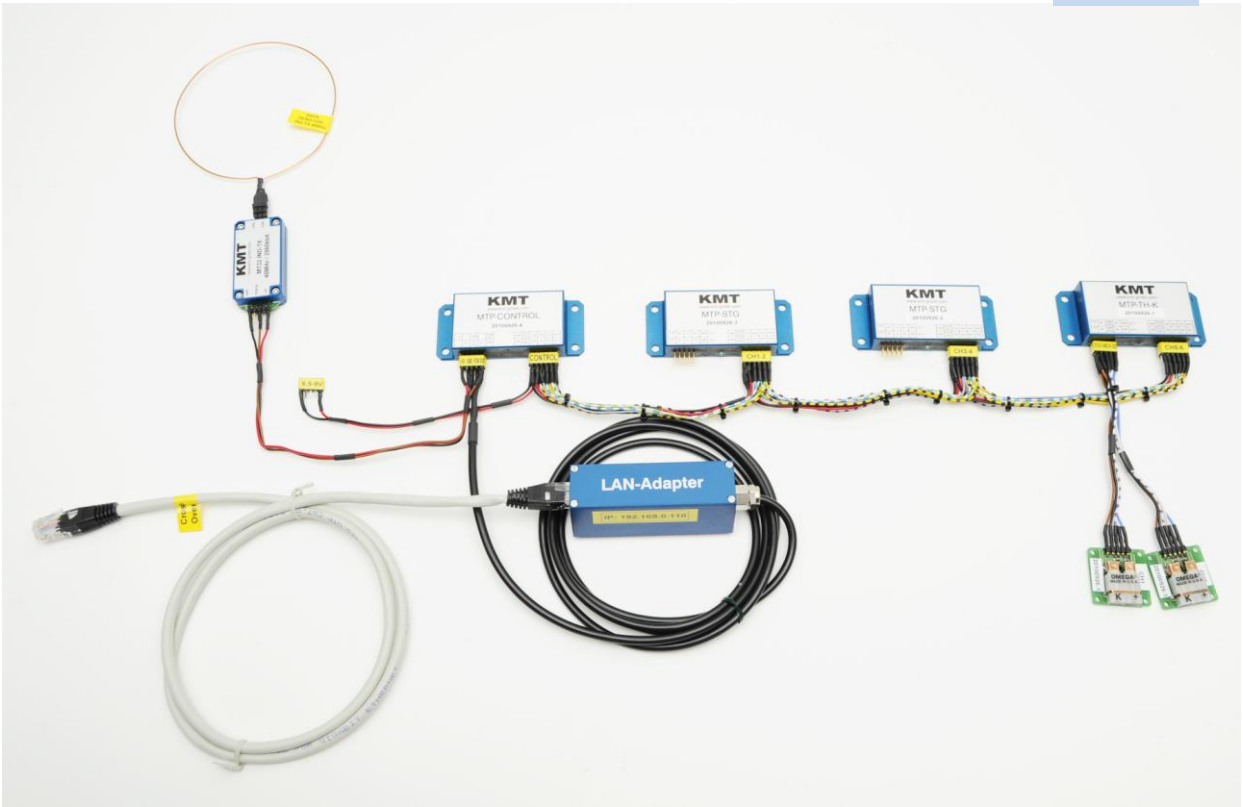
MTP-CONTROLLER - Controller for 1- 32 acquisition modules = 64 channels



MTP-CONTROL
Controller for 1- 32 acquisition modules = 64 channels
Output: PCM
Programmable via LAN adapter
Powering: 6.5-9V DC
Current consumption 40mA (with connected LAN Adapter80mA)
Vibration: 5g
Static acceleration: 3000g
Shock: 10000g

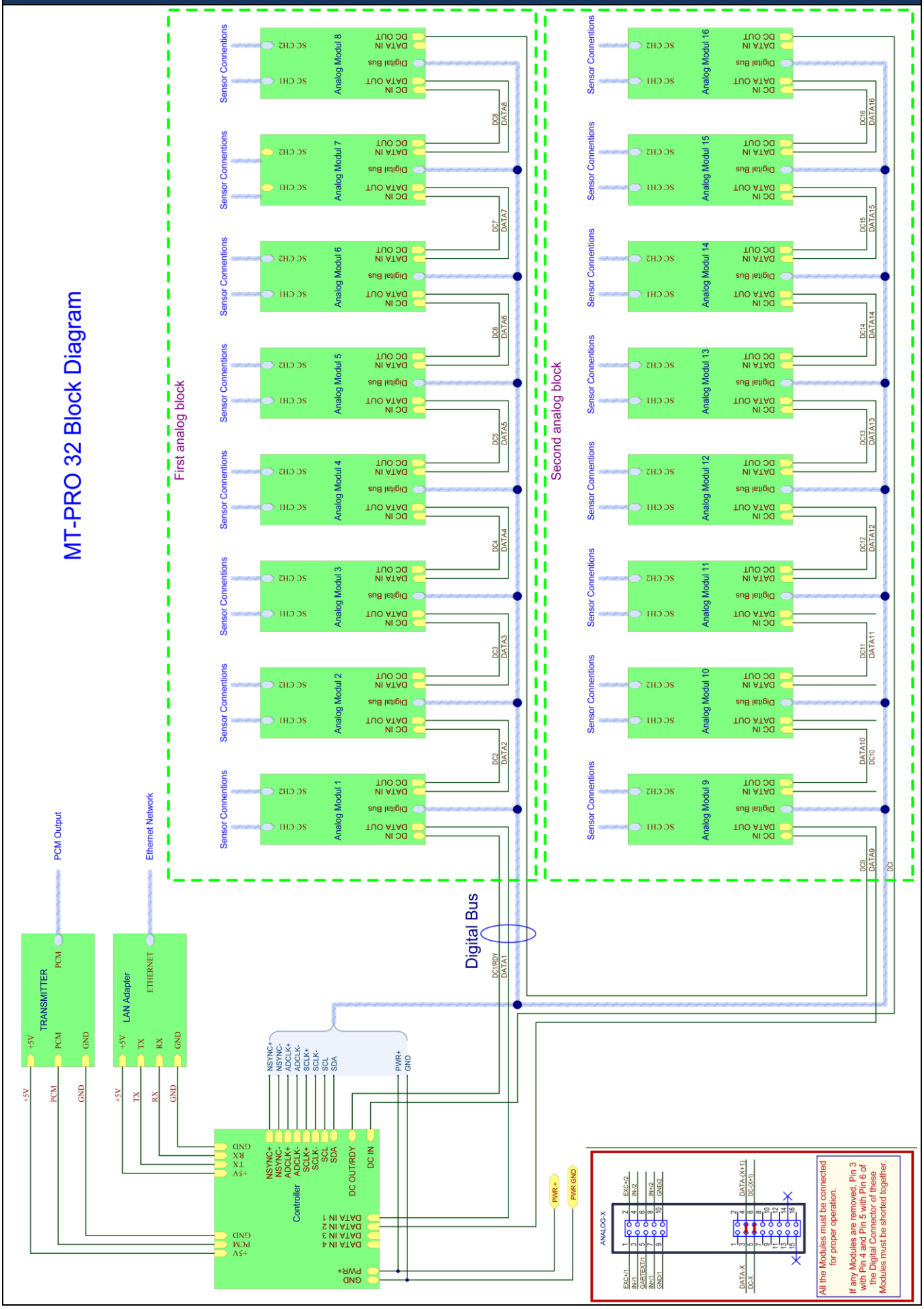


Control pin assignment

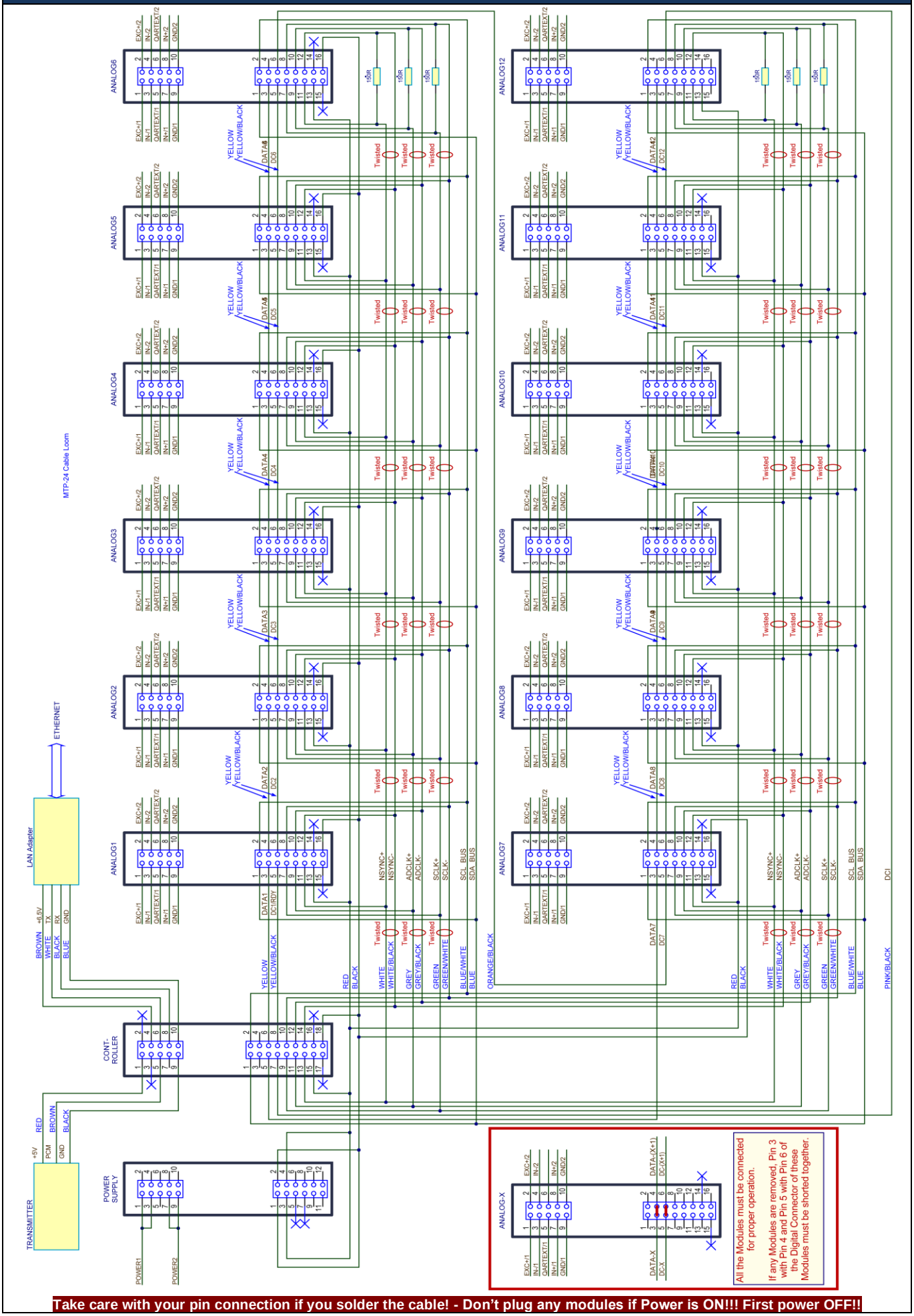


Example of a MTP system (rotating side) with LAN-Adapter and inductive transmitter incl. demo coil

MTP - Block diagram example for 32 channels

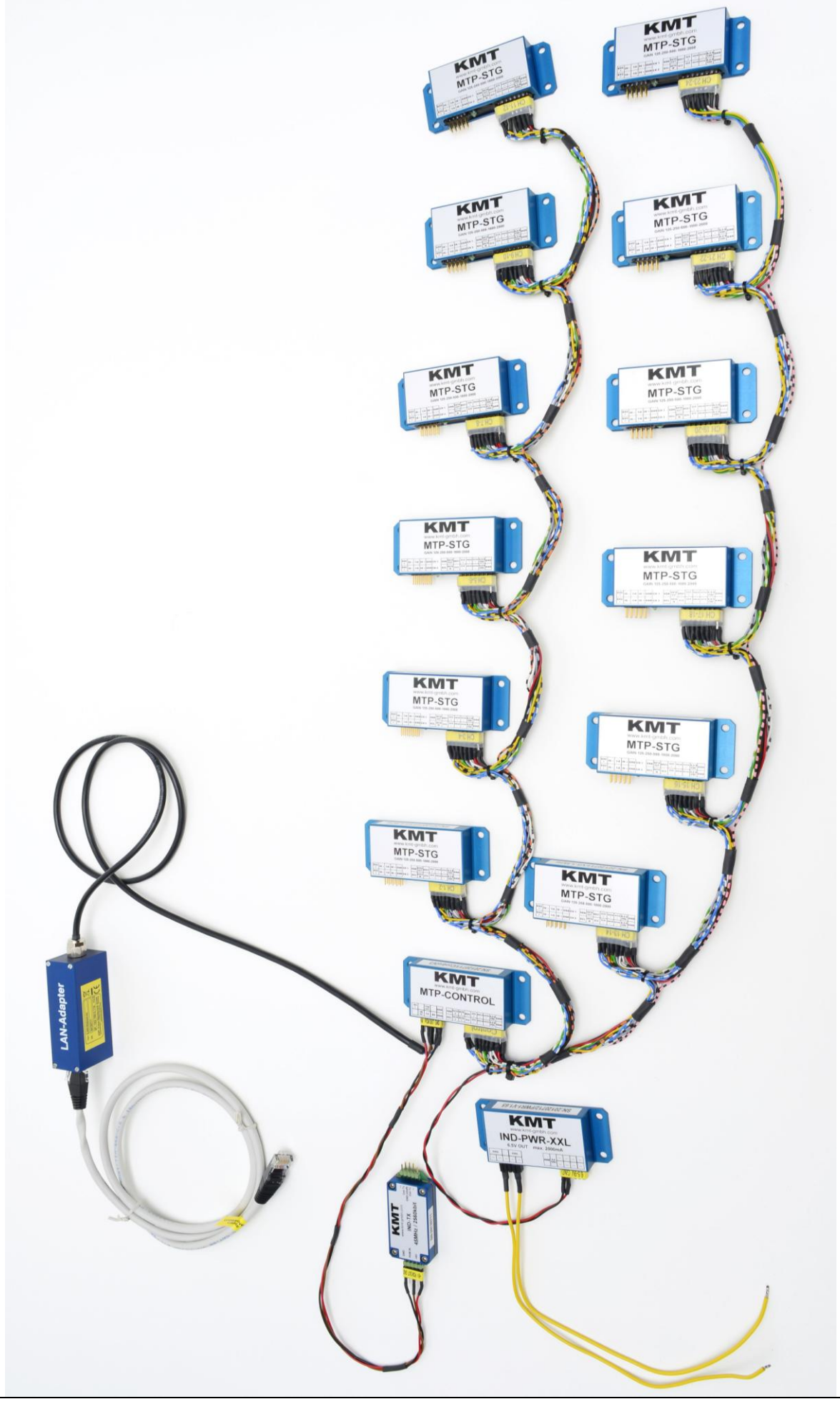


MTP – 24 CH cable loom and connection

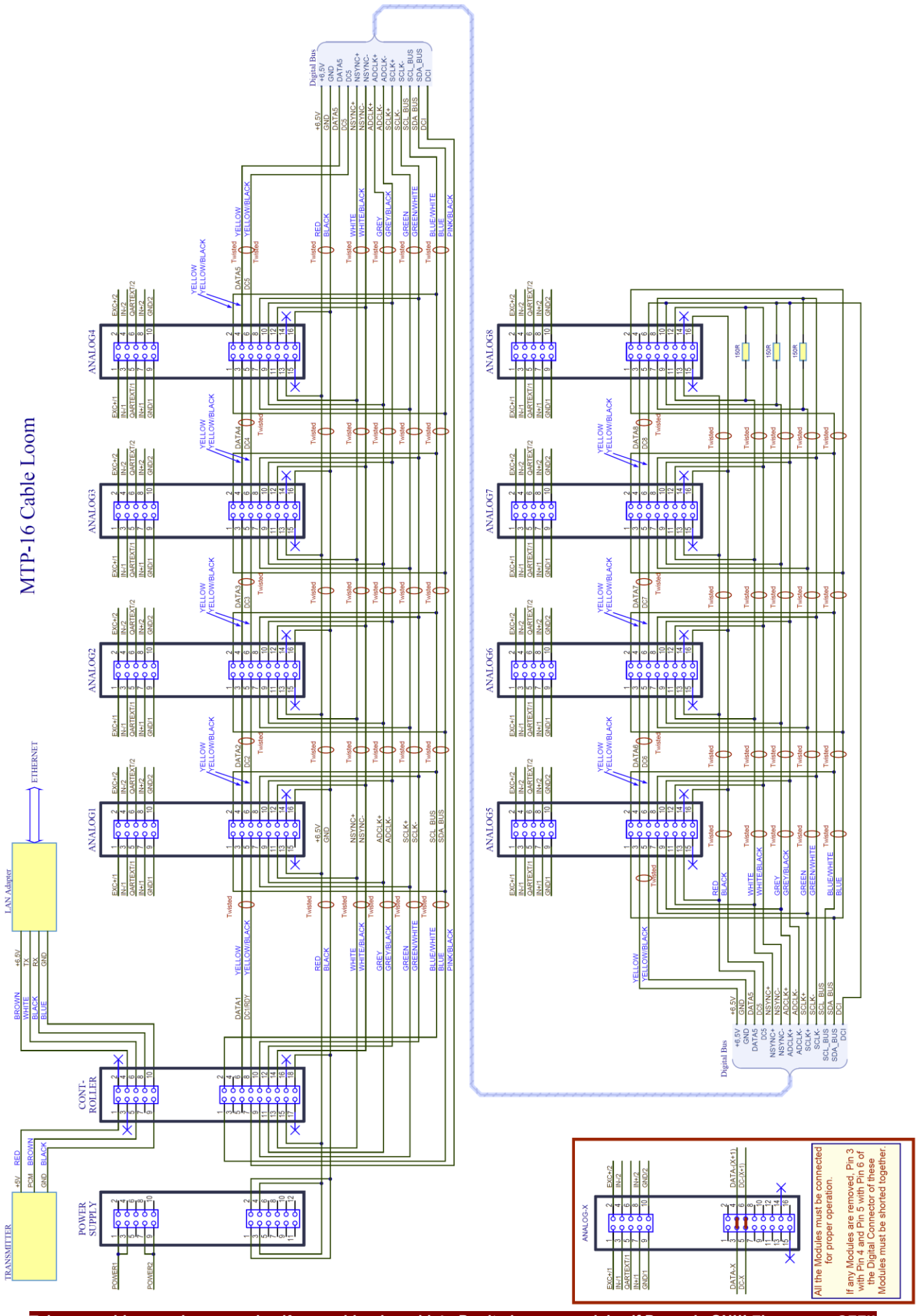


Take care with your pin connection if you solder the cable! - Don't plug any modules if Power is ON!!! First power OFF!!

MTP –picture of 24 CH cable loom with 12xMTP-STG modules, IND-HF Tx and IND-PWR

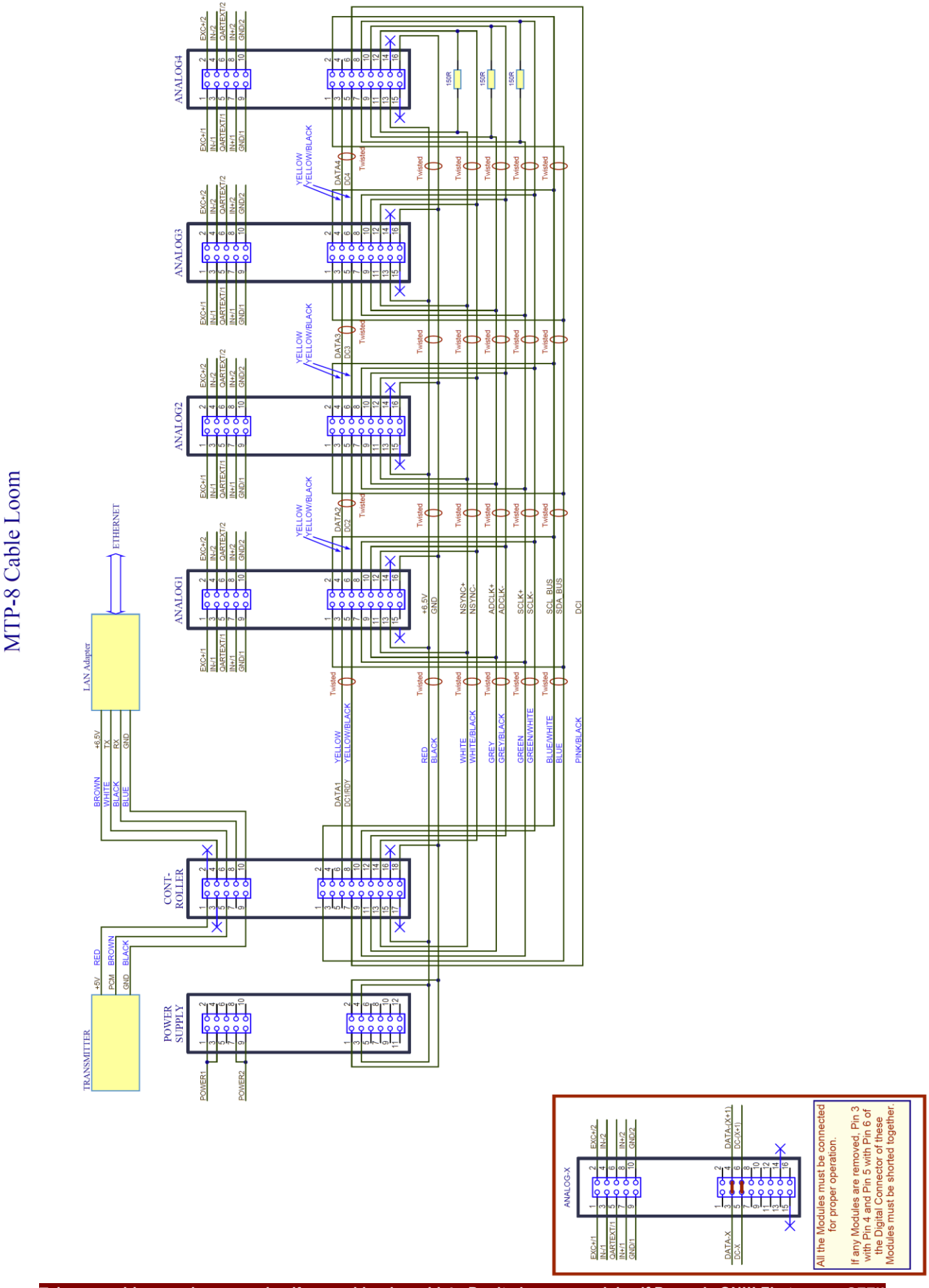


MTP – 16 CH cable loom and connection



Take care with your pin connection if you solder the cable! - Don't plug any modules if Power is ON!!! First power OFF!!

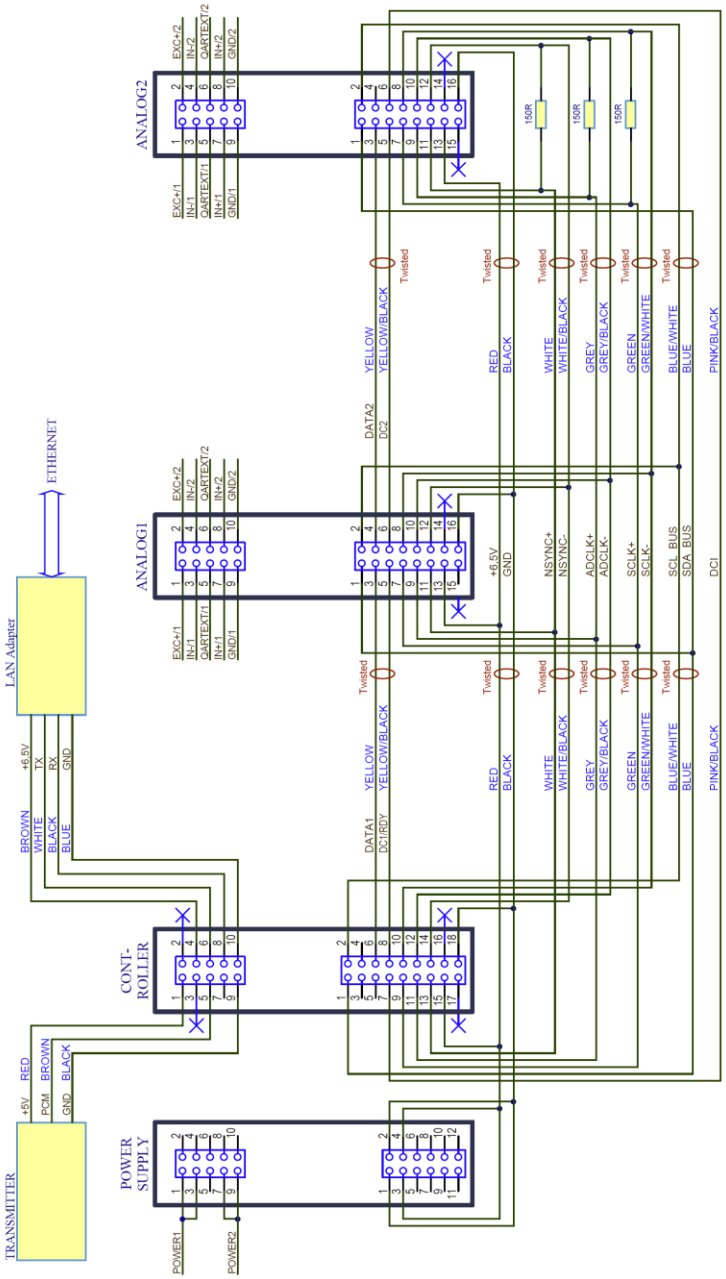
MTP –picture of 16 CH cable loom with 6xMTP-STG modules, IND-HF Tx and IND-PWR

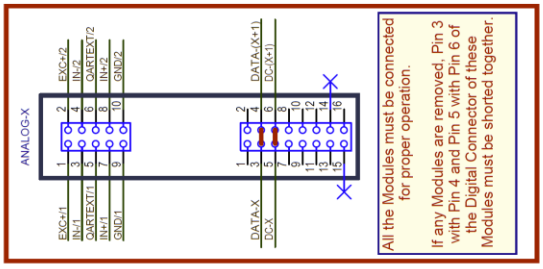


Take care with your pin connection if you solder the cable! - Don't plug any modules if Power is ON!!! First power OFF!!

MTP – 4 CH cable loom and connection

MTP-4 Cable Loom





Take care with your pin connection if you solder the cable! - Don't plug any modules if Power is ON!!! First power OFF!!

MTP- Explanation of abbreviations of block diagram

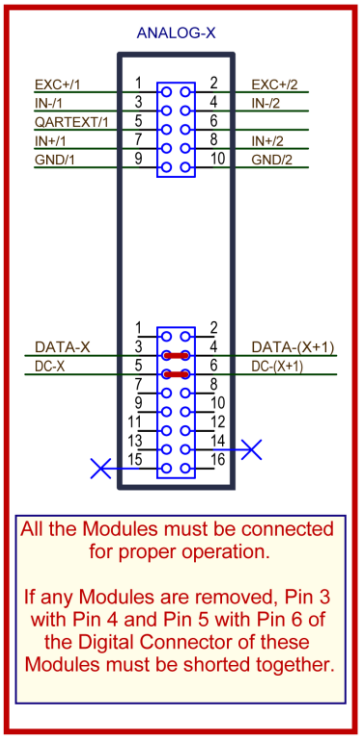
NSYNC+ :	ADC synchronizing signal+
NSYNC- :	ADC synchronizing signal-
ADCLK+ :	ADC clock signal+
ADCLK- :	ADC clock signal-
SCLK+ :	ADC data shift out clock signal+
SCLK- :	ADC data shift out clock signal-
SCL :	IIC clock signal for setting up analog channel parameter
SDA :	IIC data signal for setting up analog channel parameter
DC OUT/RDY :	daisy chain signal out from controller while setting up analog channels / ready signal from the ADC while measuring
DC2 .. DC16 :	daisy chain signal from one module to the next module
DC I :	daisy chain signal to the controller from the end of the module chain
DATA 2 .. DATA 8 :	data daisy chain signals of the first analog block
DATA 10 .. DATA 16:	data daisy chain signals of the second analog block
DATA 1 :	data in from the first analog block
DATA 9 :	data In from the second analog block
PCM :	PCM output signal
TX :	RS232 transmit signal to the LAN adapter
RX :	RS232 receive signal from the LAN adapter
+5V :	+5V power for the LAN Adapter and the transmitter
GND :	power ground for the LAN Adapter and the transmitter
PWR + :	power supply + 6-9V
PWR GND :	power supply ground

Important:

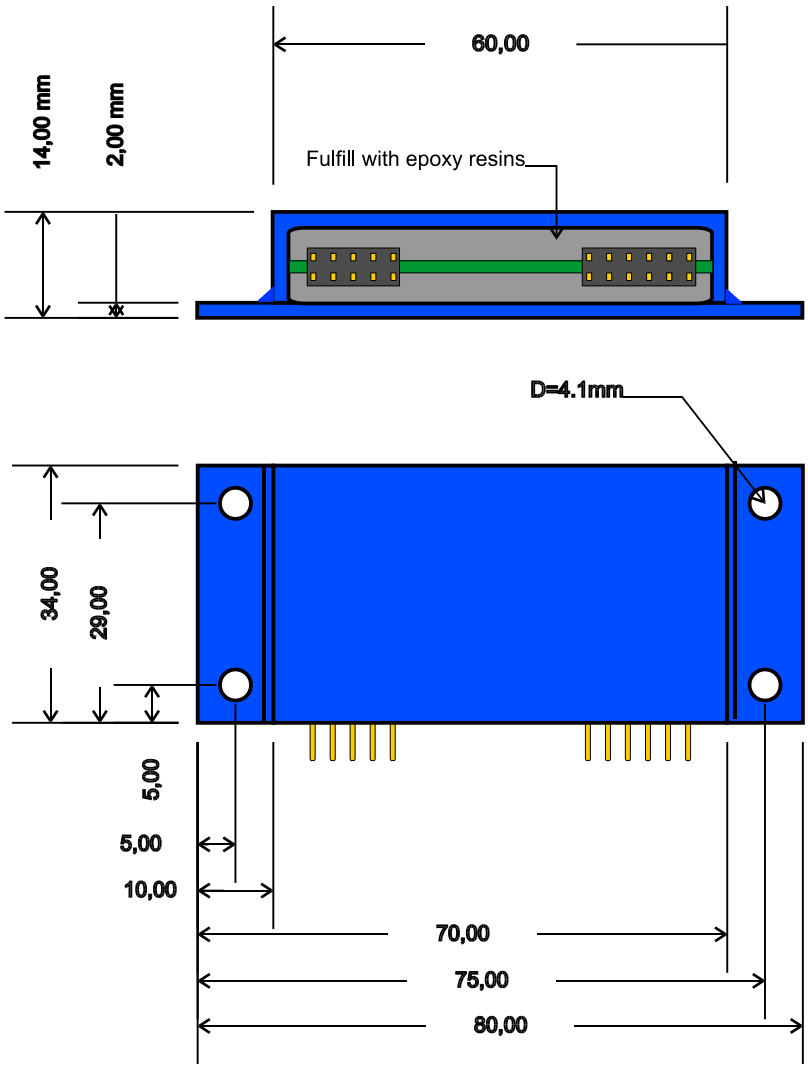
In one analog block maximal 8 analog modules can be daisy chained.

The daisy chain loops must not be broken! If one of the modules is missing, the signals of this position must be shorted together:

"DATA OUT" <--> "DATA IN" and "DC OUT" <--> "DC IN"

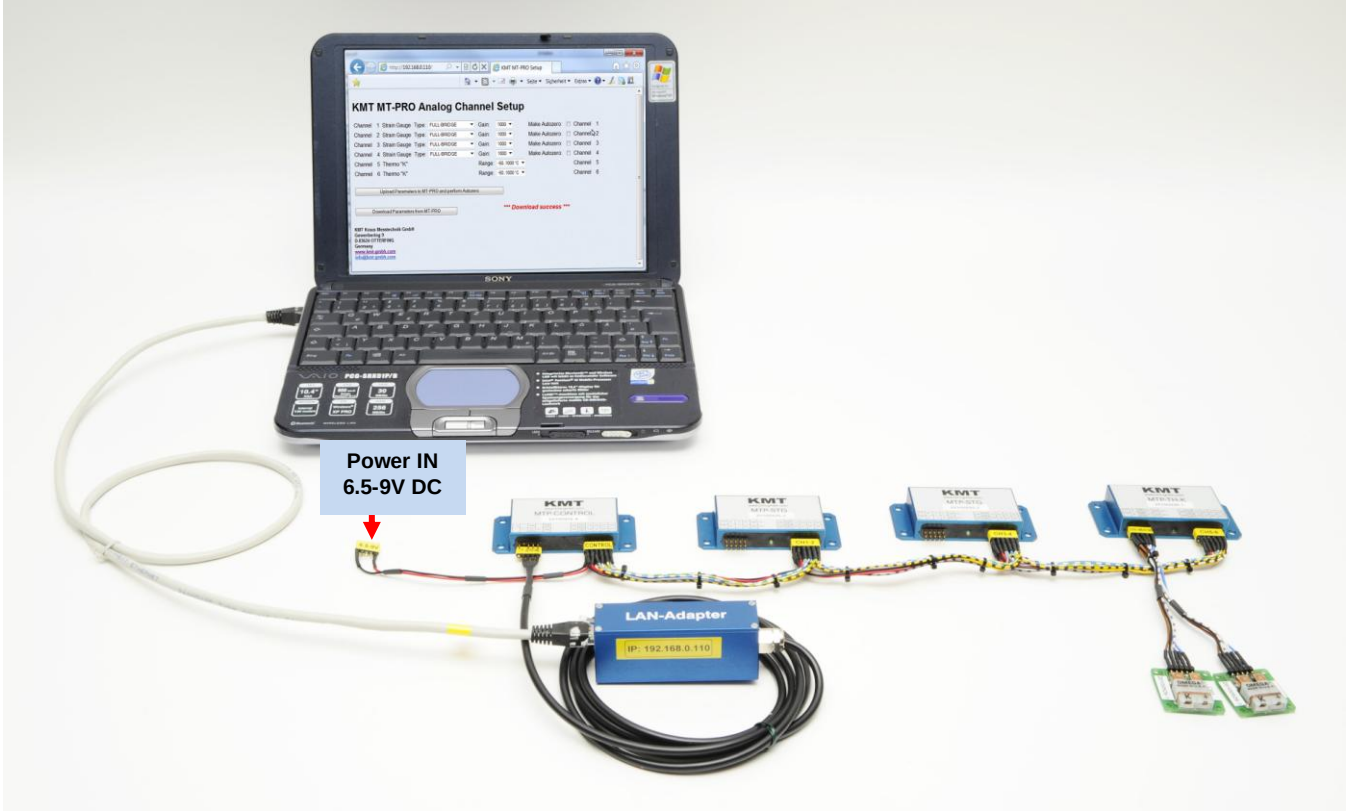


MTP acquisition module - dimensions

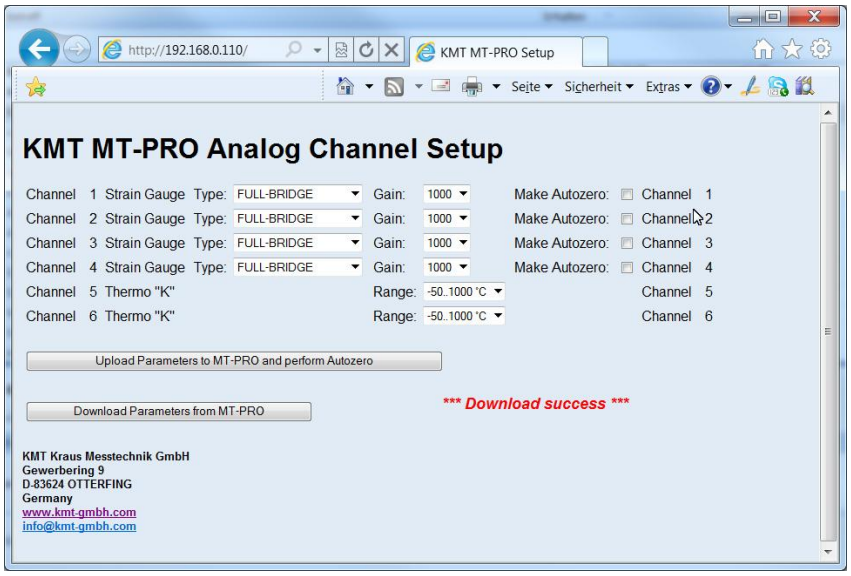


Weight about 60 grams

MTP
Software setup via LAN-Adapter and notebook

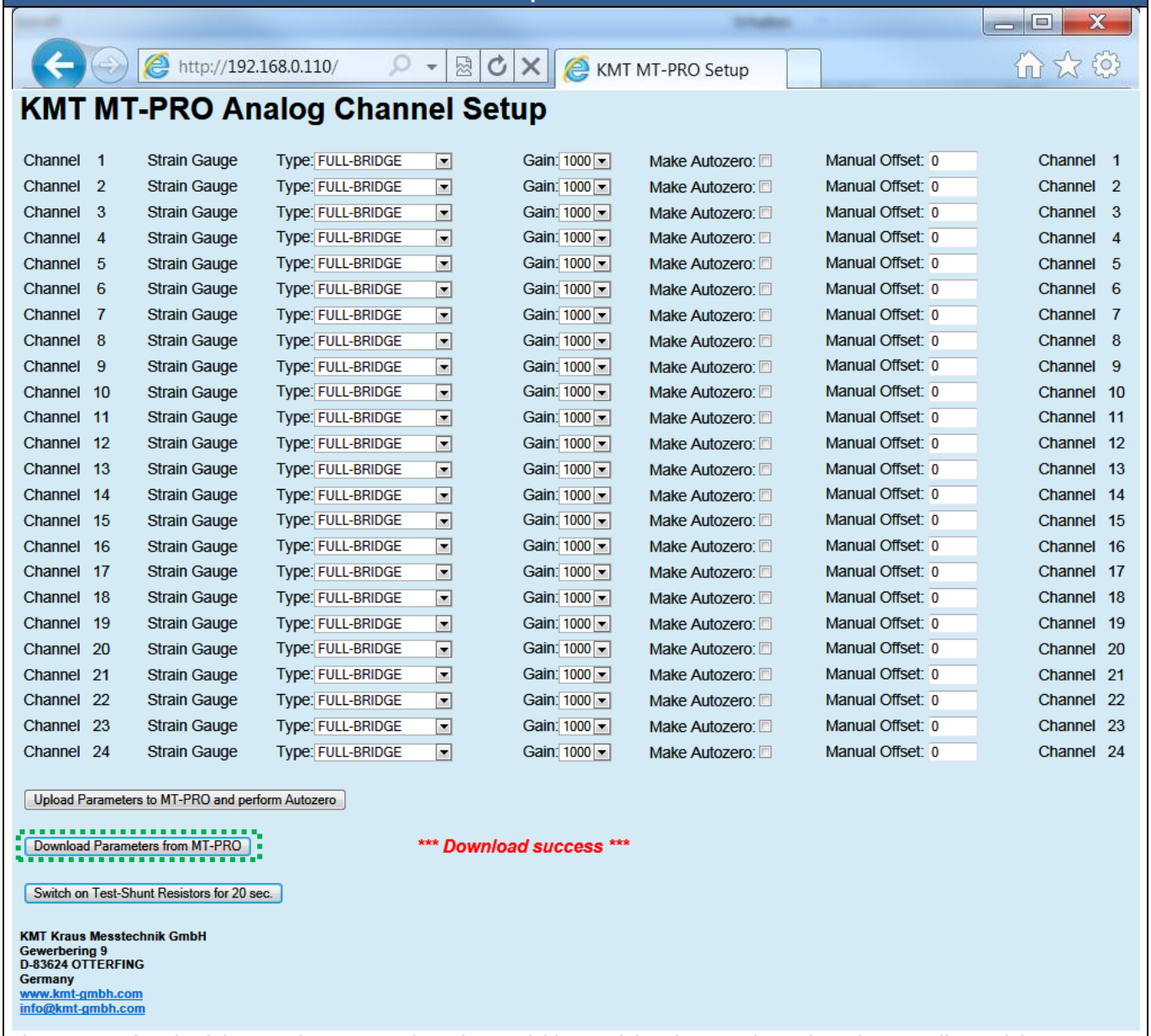


1) Power the MTP modules with power 6.5-9VDC
2) Connect the LAN-Adapter with the MTP-CONTROL module (see pin connection at MTP-CONTROL)
3) Adjust your notebook to manual on e.g. IP 192.168.0.20
4) Connect LAN-Adapter with your notebook via cross-over LAN cable
5) Open Microsoft Internet Browser and enter IP address **192.168.0.110** of LAN-Adapter
6) Now you get access on the web-interface and can adjust the MTP-CONTROL module


http://192.168.0.110/
KMT MT-PRO Setup
Seite
Sicherheit
Extras
KMT MT-PRO Analog Channel Setup
Channel 1 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 1
Channel 2 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 2
Channel 3 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 3
Channel 4 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 4
Channel 5 Thermo "K" Range: -50..1000 °C Channel 5
Channel 6 Thermo "K" Range: -50..1000 °C Channel 6
Upload Parameters to MT-PRO and perform Autozero
Download Parameters from MT-PRO
*** Download success ***
KMT Kraus Messtechnik GmbH
Gewerbering 9
D-83624 OTTERFING
Germany
www.kmt-gmbh.com
info@kmt-gmbh.com

MTP-CONTROL V3 - Software setup

DOWNLOAD parameters for device

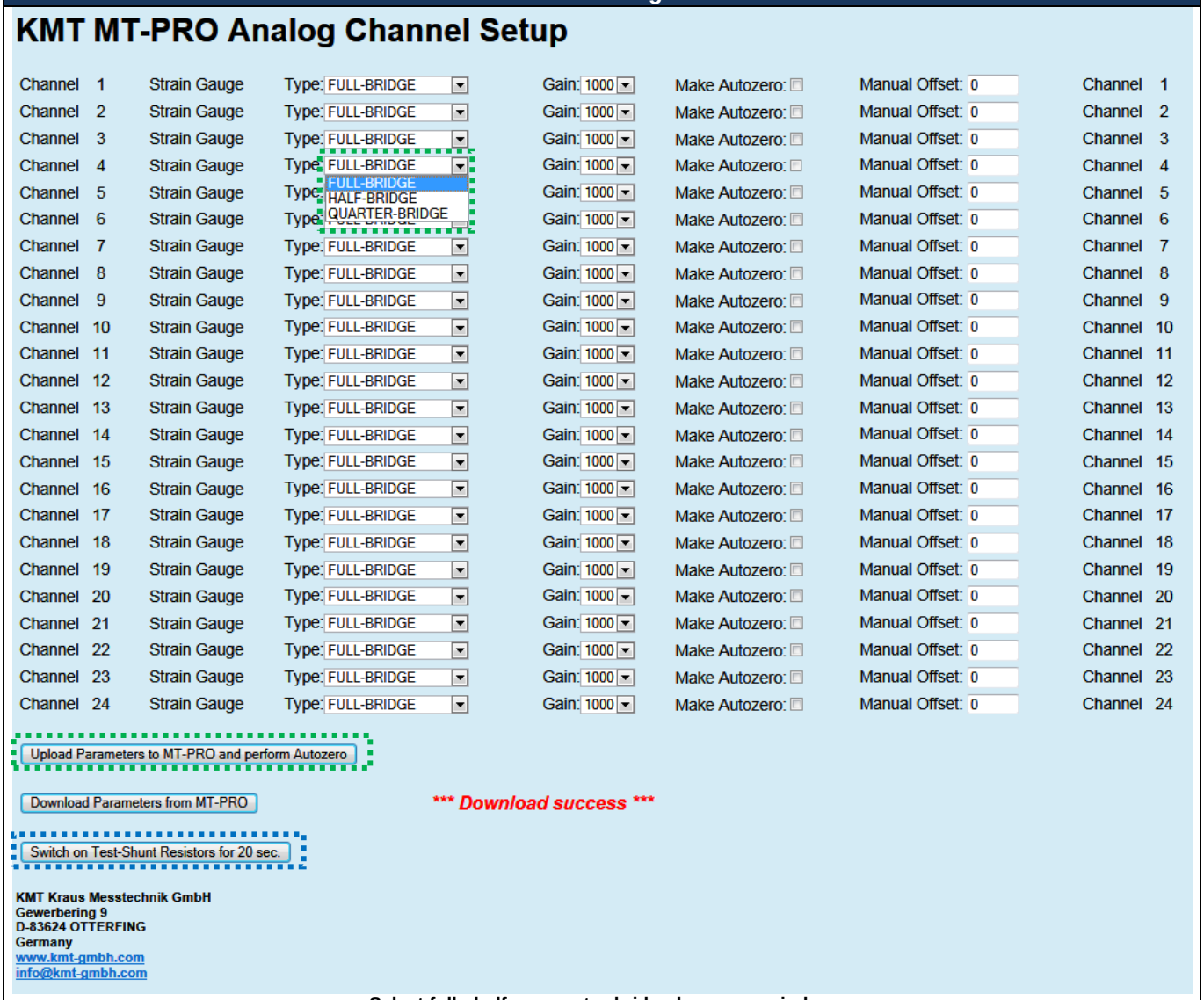

http://192.168.0.110/
KMT MT-PRO Setup
KMT MT-PRO Analog Channel Setup
Channel 1 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 1
Channel 2 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 2
Channel 3 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 3
Channel 4 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 4
Channel 5 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 5
Channel 6 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 6
Channel 7 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 7
Channel 8 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 8
Channel 9 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 9
Channel 10 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 10
Channel 11 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 11
Channel 12 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 12
Channel 13 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 13
Channel 14 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 14
Channel 15 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 15
Channel 16 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 16
Channel 17 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 17
Channel 18 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 18
Channel 19 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 19
Channel 20 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 20
Channel 21 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 21
Channel 22 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 22
Channel 23 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 23
Channel 24 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 24
Upload Parameters to MT-PRO and perform Autozero
Download Parameters from MT-PRO
*** Download success ***
Switch on Test-Shunt Resistors for 20 sec.
KMT Kraus Messtechnik GmbH
Gewerbering 9
D-83624 OTTERFING
Germany
www.kmt-gmbh.com
info@kmt-gmbh.com

First you can download the stored parameters from the acquisition modules via LAN adapter from the controller module .
All connected acquisition modules will detect!

Caution:

Never use the refresh button on your browser; otherwise the parameters of you browser cash will upload to the MTP-STG!°

BRIDGE setting STG


KMT MT-PRO Analog Channel Setup
Channel 1 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 1
Channel 2 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 2
Channel 3 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 3
Channel 4 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 4
Channel 5 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 5
Channel 6 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 6
Channel 7 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 7
Channel 8 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 8
Channel 9 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 9
Channel 10 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 10
Channel 11 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 11
Channel 12 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 12
Channel 13 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 13
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Channel 15 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 15
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Channel 19 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 19
Channel 20 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 20
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Channel 23 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 23
Channel 24 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 24
FULL-BRIDGE
HALF-BRIDGE
QUARTER-BRIDGE
Upload Parameters to MT-PRO and perform Autozero
Download Parameters from MT-PRO
*** Download success ***
Switch on Test-Shunt Resistors for 20 sec.
KMT Kraus Messtechnik GmbH
Gewerbering 9
D-83624 OTTERFING
Germany
www.kmt-gmbh.com
info@kmt-gmbh.com

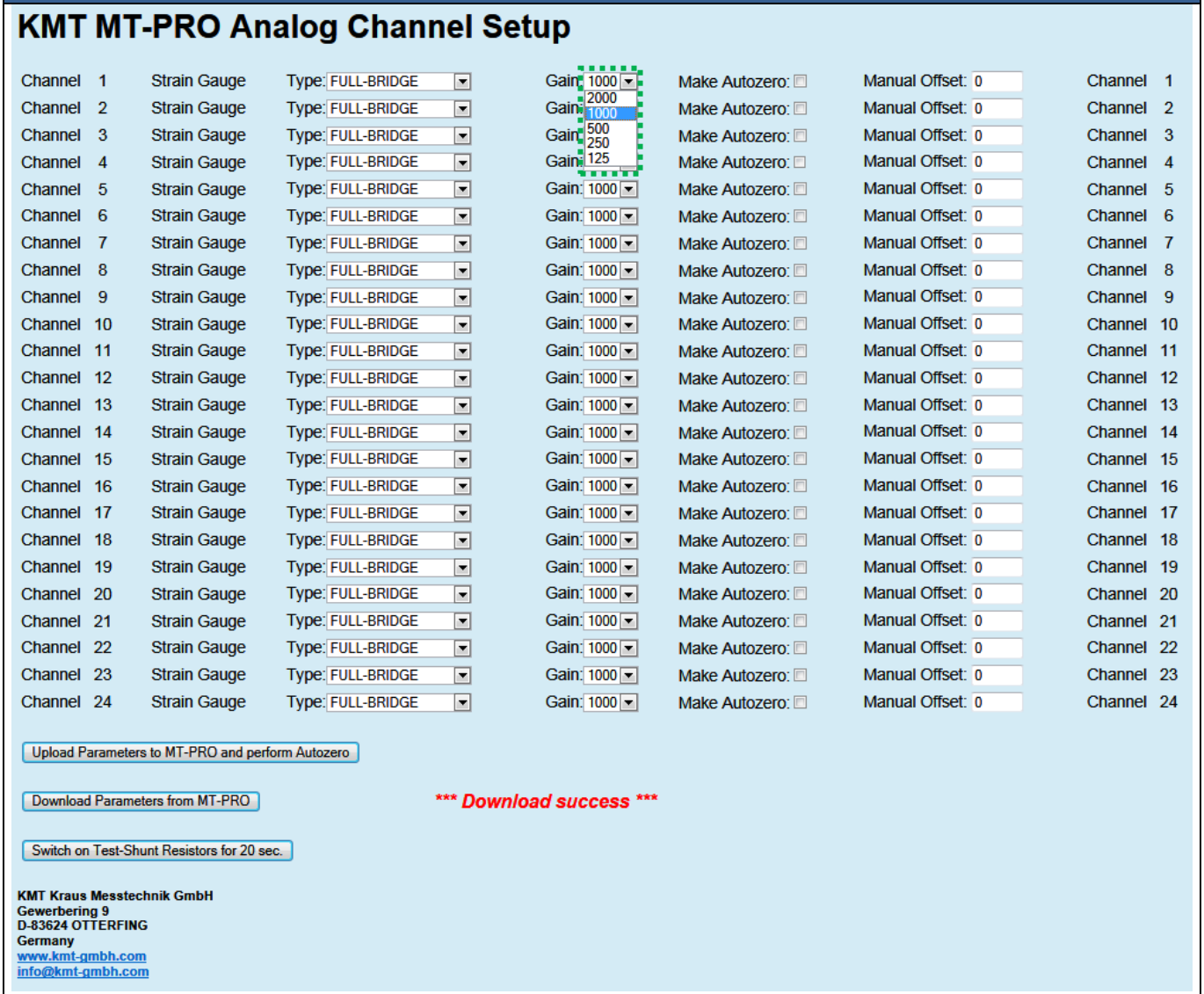
Select full-, half- or quarter-bridge by popup window

Execute through "Upload Parameters to MT-PRO and perform Autozero" button

If you want test your bridge, you can execute the function Test-Shunt Resistor for 20 sec. button

In this case all STG channels get a shunt-cal step of about 80% of the from measuring range at GAIN 2000
In this case all STG channels get a shunt-cal step of about 40% of the from measuring range at GAIN 1000
In this case all STG channels get a shunt-cal step of about 20% of the from measuring range at GAIN 500
In this case all STG channels get a shunt-cal step of about 10% of the from measuring range at GAIN 250
In this case all STG channels get a shunt-cal step of about 5% of the from measuring range at GAIN 125

GAIN setting STG


KMT MT-PRO Analog Channel Setup
Channel 1 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 1
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Channel 23 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 23
Channel 24 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 24
2000
1000
500
250
125
Upload Parameters to MT-PRO and perform Autozero
Download Parameters from MT-PRO
*** Download success ***
Switch on Test-Shunt Resistors for 20 sec.
KMT Kraus Messtechnik GmbH
Gewerbering 9
D-83624 OTTERFING
Germany
www.kmt-gmbh.com
info@kmt-gmbh.com

Select gain of 125-250-500-1000 or 2000 by popup window
After change the gain you must make a new autozero!!

Execute through "Upload Parameters to MT-PRO and perform Autozero" button

AutoZero setting STG

KMT MT-PRO Analog Channel Setup

Channel 1	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☑	Manual Offset: 0	Channel 1
Channel 2	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☑	Manual Offset: 0	Channel 2
Channel 3	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 3
Channel 4	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 4
Channel 5	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☑	Manual Offset: 0	Channel 5
Channel 6	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 6
Channel 7	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 7
Channel 8	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 8
Channel 9	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 9
Channel 10	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 10
Channel 11	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 11
Channel 12	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 12
Channel 13	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 13
Channel 14	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 14
Channel 15	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 15
Channel 16	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 16
Channel 17	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 17
Channel 18	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 18
Channel 19	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 19
Channel 20	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 20
Channel 21	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 21
Channel 22	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 22
Channel 23	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 23
Channel 24	Strain Gauge	Type: FULL-BRIDGE	Gain: 1000	Make Autozero: ☐	Manual Offset: 0	Channel 24

Upload Parameters to MT-PRO and perform Autozero

Download Parameters from MT-PRO

*** Download success ***

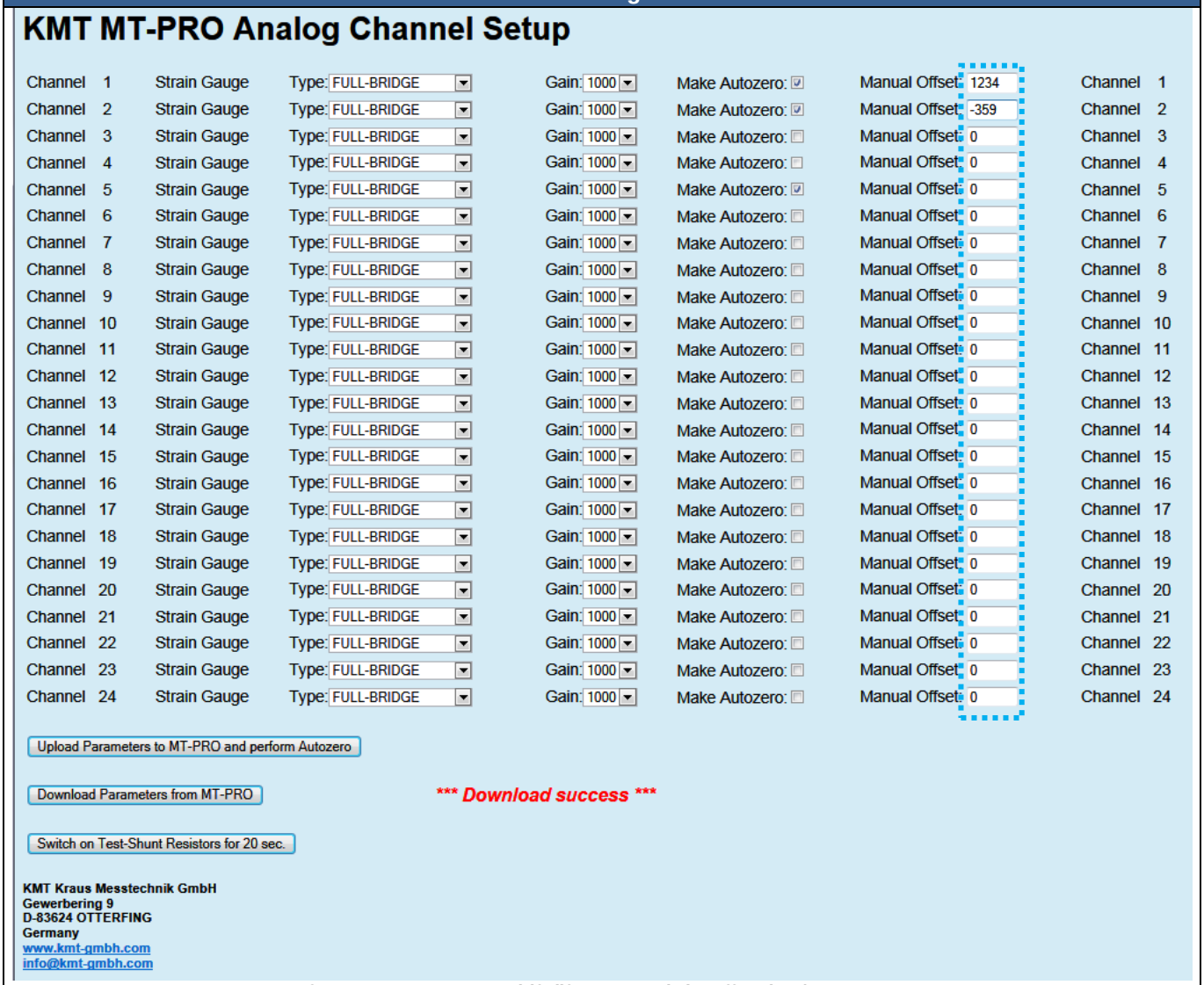
Switch on Test-Shunt Resistors for 20 sec.

KMT Kraus Messtechnik GmbH
Gewerbering 9
D-83624 OTTERFING
Germany
www.kmt-gmbh.com
info@kmt-gmbh.com

Select Auto-Zero per channel. The Auto-Zero function will be executed only one time per upload the parameters to MTP-STG! It will be stored also after power off in the MTP-STG until you make a new Auto-Zero on this channel!

Execute through "Upload Parameters to MT-PRO and perform Autozero" button

Manual Offset shifting after AutoZero

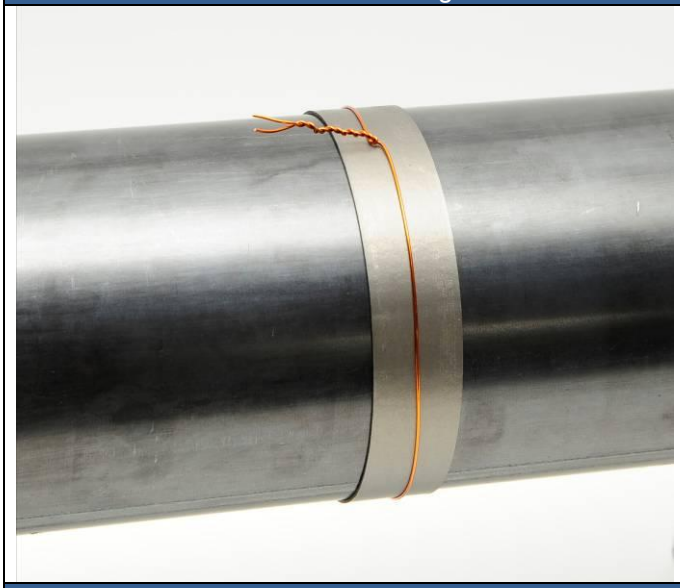

KMT MT-PRO Analog Channel Setup
Channel 1 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 1234 Channel 1
Channel 2 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: -359 Channel 2
Channel 3 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 3
Channel 4 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 4
Channel 5 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 5
Channel 6 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 6
Channel 7 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 7
Channel 8 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 8
Channel 9 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 9
Channel 10 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 10
Channel 11 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 11
Channel 12 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 12
Channel 13 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 13
Channel 14 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 14
Channel 15 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 15
Channel 16 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 16
Channel 17 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 17
Channel 18 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 18
Channel 19 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 19
Channel 20 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 20
Channel 21 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 21
Channel 22 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 22
Channel 23 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 23
Channel 24 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Manual Offset: 0 Channel 24
Upload Parameters to MT-PRO and perform Autozero
Download Parameters from MT-PRO
*** Download success ***
Switch on Test-Shunt Resistors for 20 sec.
KMT Kraus Messtechnik GmbH
Gewerbering 9
D-83624 OTTERFING
Germany
www.kmt-gmbh.com
info@kmt-gmbh.com

After AutoZero you can shift (if necessary) the offset in +/-2000 steps

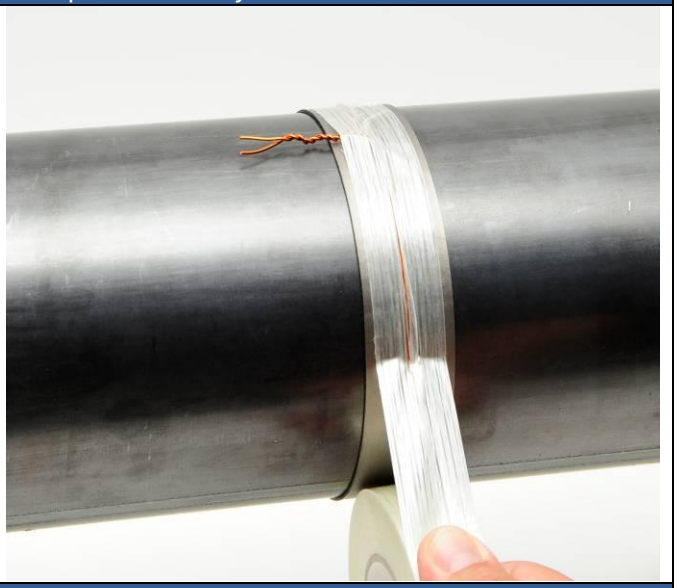
Execute through "Upload Parameters to MT-PRO and perform Autozero" button

Inductive transmission (2500kbit) with MTP-IND-TX-RX with 45MHz carrier!
With 45MHz carrier is only 1x winding necessary!

Attach for electromagnetic insulation “Ferrite Tape” **2 x one** layer around the shaft.



Make transmitting coil with 1x winding and twisted the end of wire. Use CUL 0.63-1.00mm wire
(CUL = Enamelled copper wire)



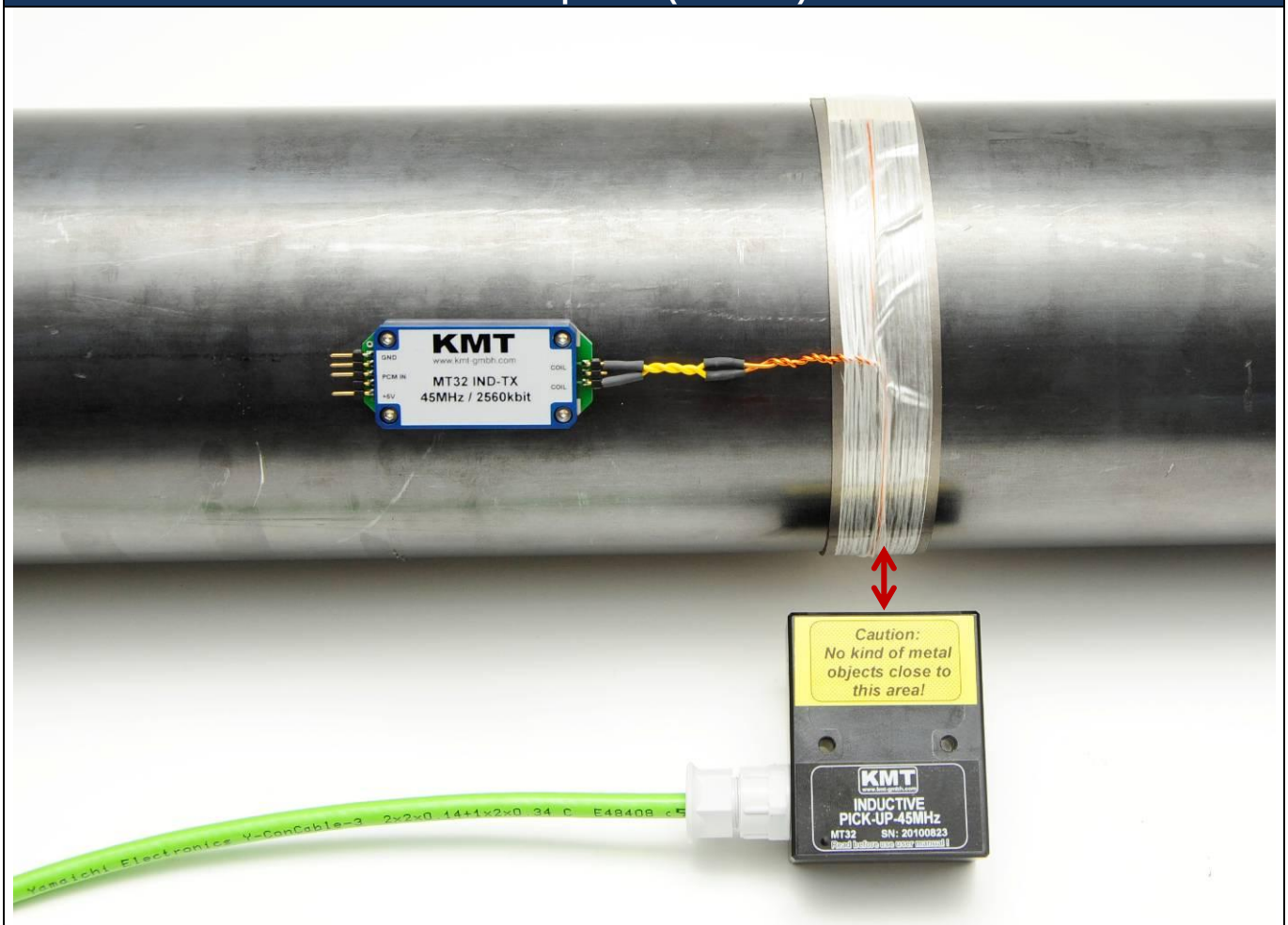
Fixed it with 3 layers mounting tape

Extend the CUL wire flexible 0.14-0.25mm wire
(to decouple the inflexible 1mm wire!,
at 0.63 not necessary)

Twisted also the flexible wire and solder it on the MTP-IND-Tx (isolate all solder points with shrink tubing)

MTP-IND-TX-RX with 45MHz carrier!

Pickup head (2500kbit)



Inductive Pick-Up head mount in this position! Distance between head and Tx coil can be up to 100mm
Typical 50mm, distance deepens of application!!

To avoid transmitting problems, the transmitter module must be close the transmitting antenna!
The cables (PCM/GND/+5V) between MPT-IND-TX 45MHz and MTP-CONTROL can be 1000mm long!

CAUTION:
If you want to install also an inductive power coil close to the data coil, the minimal distance must be <10mm!
(distance between IND-PWR coil to IND-DATA coil)

KMT - Kraus Messtechnik GmbH

Gewerbering 9, D-83624 Otterfing, Germany, ☎ 08024-48737, Fax. 08024-5532
Home Page: http://www.kmt-telemetry.com, Email: info@kmt-telemetry.com

Konformitätserklärung

Declaration of Conformity
Declaration de Conformité

Wir We Nous	**KMT - Kraus Messtechnik GmbH**
Anschrift Address Adress	**Gewerbering 9, D-83624 Otterfing, Germany**

erklären in alleiniger Verantwortung, daß das Produkt
declare under our sole responsibility, that the product
declarons sous notre seule responsibilité, que le produit

Bezeichnung Name Nom	**Messdatenübertragungssystem**
Typ,Modell,Artikel-Nr., Größe Type,Model, Article No.,Taille Type, Modèle, Mo.d'Article,Taille	**MTP Modular Telemetry Pro**

mit den Anforderungen der Normen und Richtlinien
fulfills the requirements of the standard and regulations of the Directive
satisfait aux exigences des normes et directives

108/2004/EG	**Elektromagnetische Verträglichkeit EMV / EMC** DIN EN 61000-6-3 Ausgabe 2002-8 Elektromagnetische Verträglichkeit EMV Teil 6-3 Fachgrundnorm Störaussendung DIN EN 61000-6-1 Ausgabe 2002-8 Elektromagnetische Verträglichkeit EMV Teil 6-1 Fachgrundnorm Störfestigkeit

und den angezogenen Prüfberichten übereinstimmt und damit den Bestimmungen entspricht.
and the taken test reports und therefore corresponds to the regulations of the Directive
et les rapports d'essais notifiés et, ainsi, correspond aux règlement de la Directive.

Otterfing, 04.06.2012 **Martin Kraus**

KMT Kraus Messtechnik GmbH
D-83624 Otterfing - Gewerbering 9
Tel. 08024-48737 Fax 08024-5532
www.kmt-telemetry.com

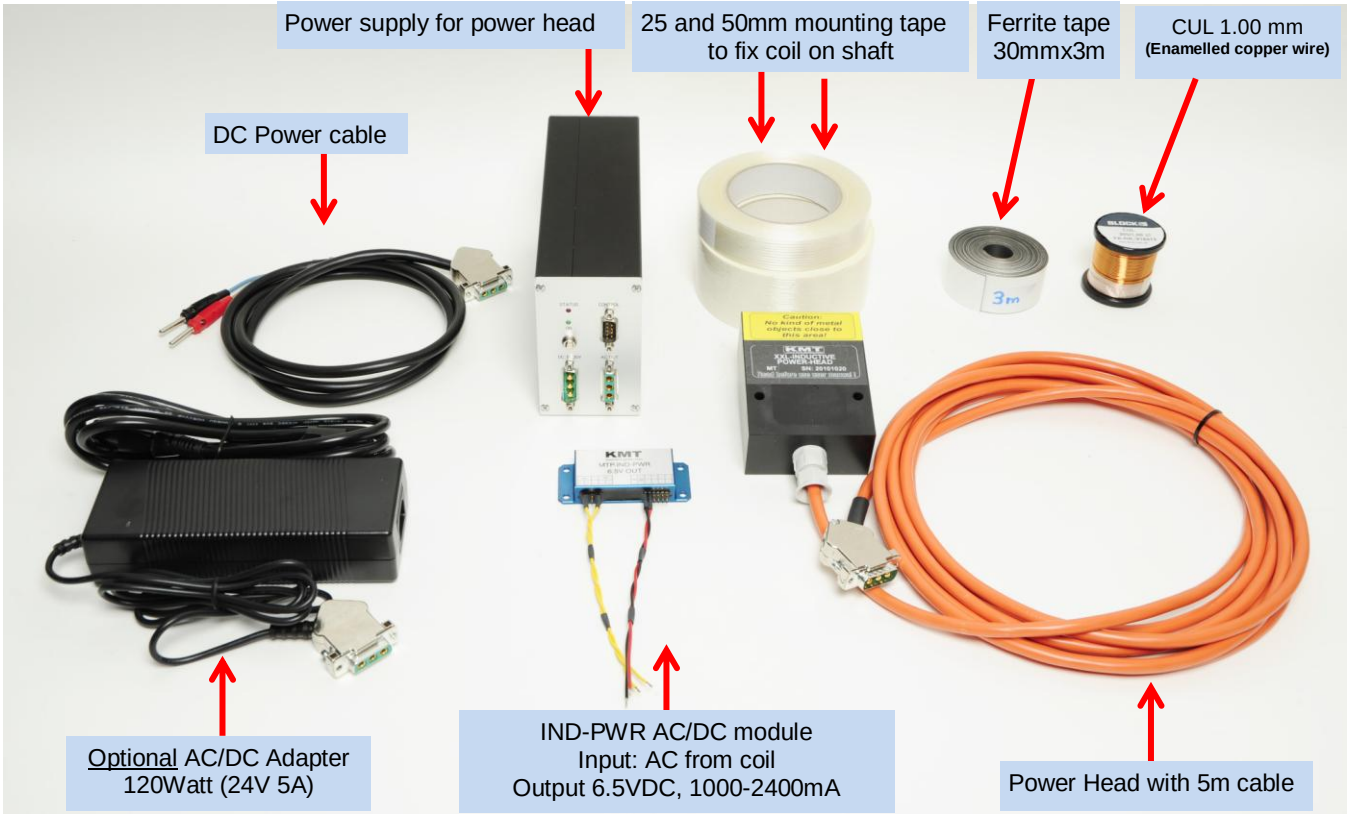
Ort und Datum der Ausstellung Place and Date of Issua Lieu et date d'établissement	Name und Unterschrift des Befugten Name and Signature of authorized person Nom et signature de la personne autorisée

KMT - Kraus Messtechnik GmbH

Gewerbering 9, D-83624 Otterfing, Germany, ☎ 08024-48737, Fax. 08024-5532
Home Page: http://www.kmt-telemetry.com, Email: info@kmt-telemetry.com

MTP
INDUCTIVE POWER XL, XXL and XXXL
with flat COIL
User Manual

Inductive power supply set


Power supply for power head
25 and 50mm mounting tape to fix coil on shaft
Ferrite tape 30mmx3m
CUL 1.00 mm (Enamelled copper wire)
DC Power cable
Optional AC/DC Adapter 120Watt (24V 5A)
IND-PWR AC/DC module
Input: AC from coil
Output 6.5VDC, 1000-2400mA
Power Head with 5m cable

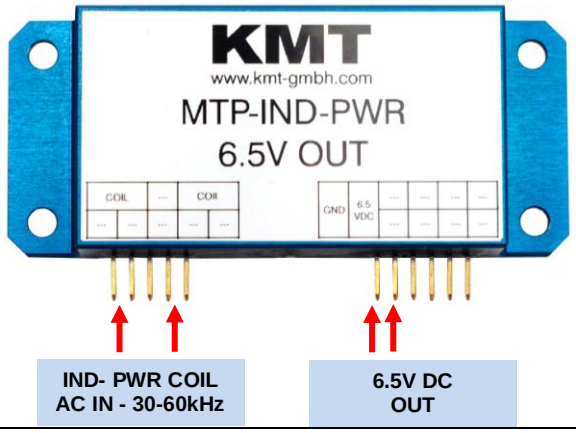
Picture shows standard Inductive Power Supply for diameter up to 300mm

INSTRUCTIONS FOR QUALIFIED PERSONNEL ONLY!

Safety notes for inductive powering

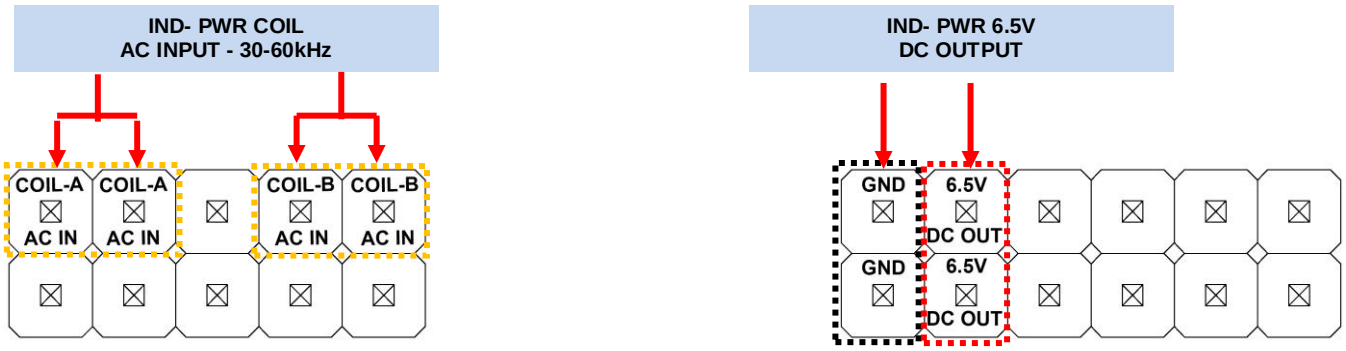
- The device should only applied by instructed personnel.
- The power head emits strong magnetic radiation at 30-60 kHz to a distance of 300 mm. Therefore persons with cardiac pacemakers should not work with this device!
- Magnetic data storage media should be kept in a distance of at least 3m from the power head to avoid data loss. The same is valid for electromagnetic sensitive parts, devices and systems.
- Do not place the power head in the switched-on state on metallic objects, because this results in eddy currents which could overload the device and strong heat up small objects. Also the probe could be destroyed!
- No metallic objects, other than the disc-type coil, should be located in the air gap of the power head. The same applies to metallic parts within a radius of up to 50 mm in all directions.
- Do not use damaged or faulty cables!
- Never touch in the area between shaft and inductive head, the rotating shaft itself or rotor electronic contacts during operation!
- This is a “Class A” system suitable for operation in a laboratory or industrial environment. The system can cause electromagnetic interferences when used in residential areas or environments. In this case the operator is responsible for establishing protective procedures.

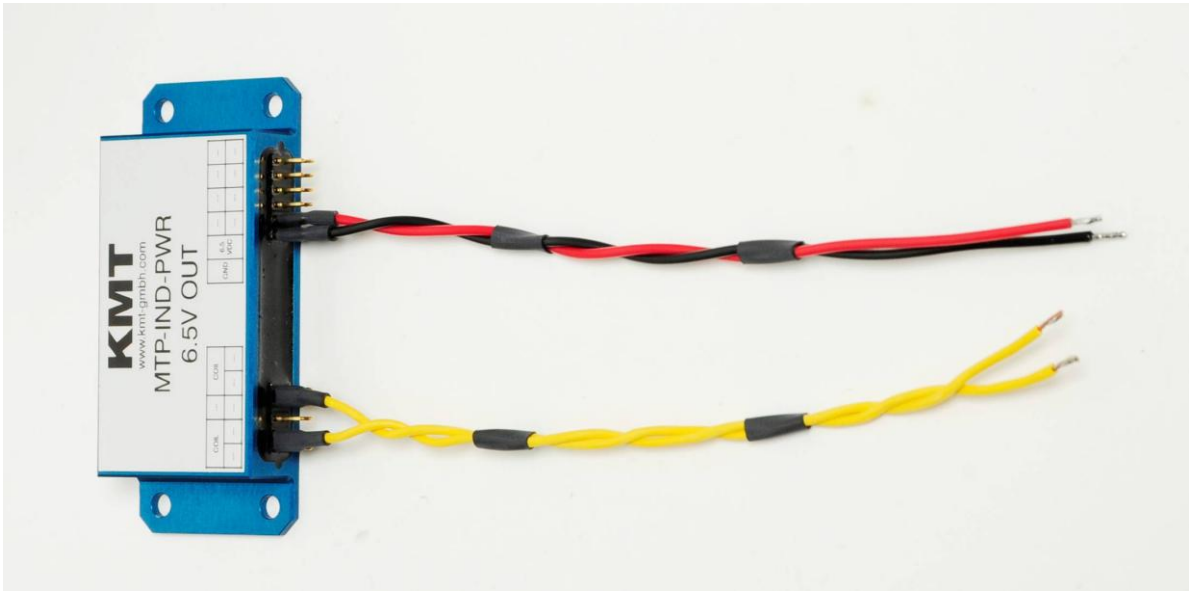
MTP-IND-PWR - AC/DC Module for inductive power



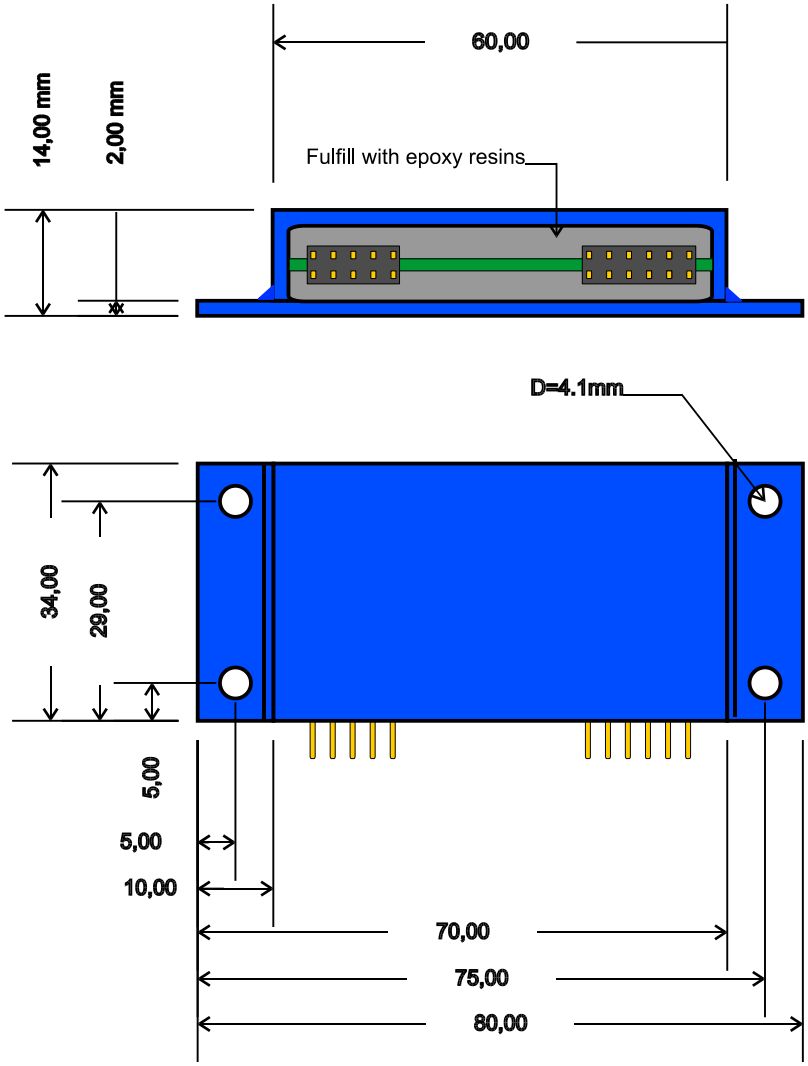
MTP-IND-PWR
AC/DC Module for inductive power
Input: 30-60kHz 10-60V AC
Can also power with DC 12-24V (Input on COIL / COIL)
Output: 6.5 DC
Current: up to 2400mA
Weight: 60 gram
Vibration: 5g
Shock: 3000g

Control pin assignment



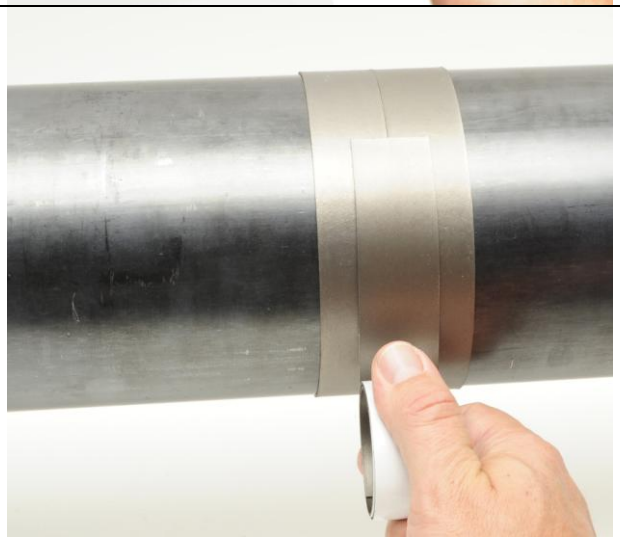


MTP module housing - dimensions

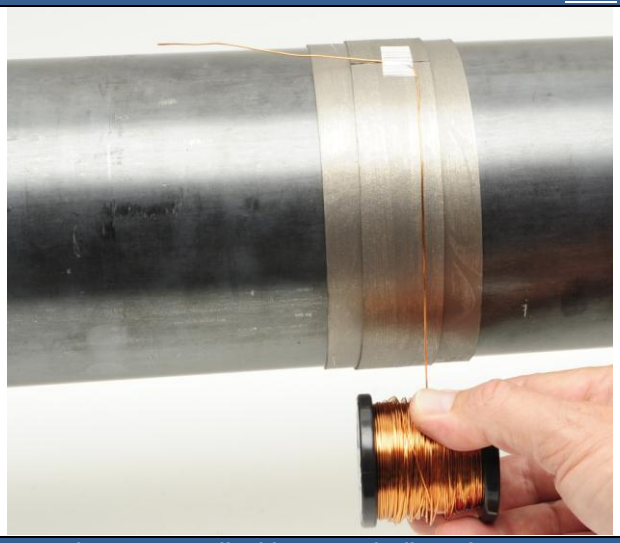


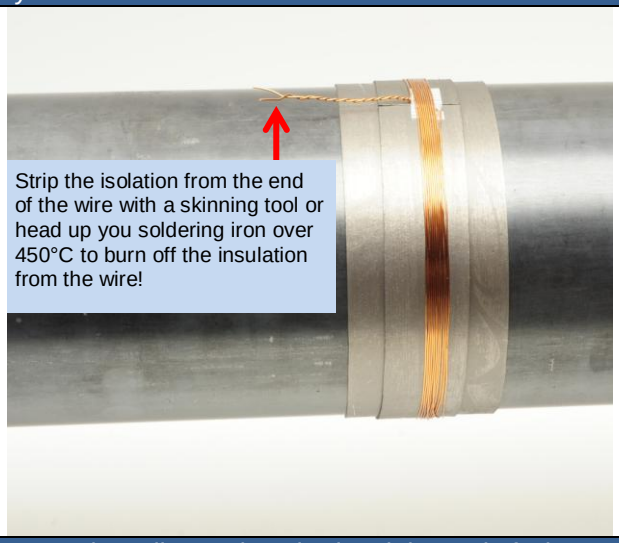
Weight about 60 grams

MTP-inductive power supply
Installation of coil for inductive powering on shaft

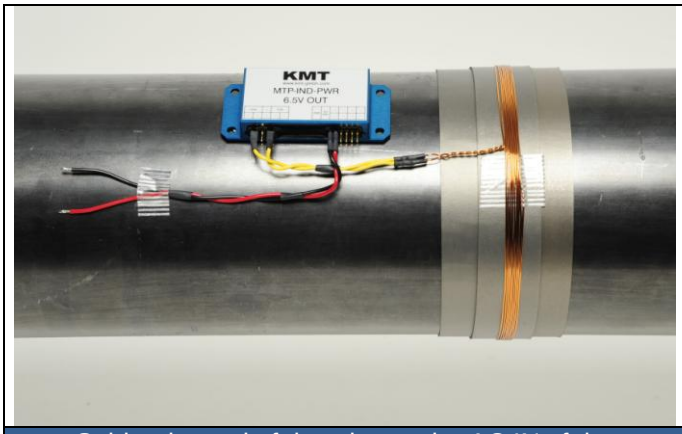


Attach for electromagnetic isolation “Ferrite Tape” 2x parallel and
1x in the middle over two layer around the shaft

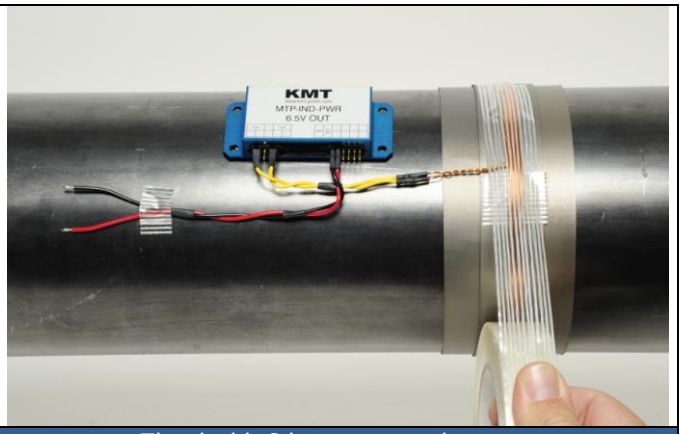



Strip the isolation from the end of the wire with a skinning tool or head up you soldering iron over 450°C to burn off the insulation from the wire!

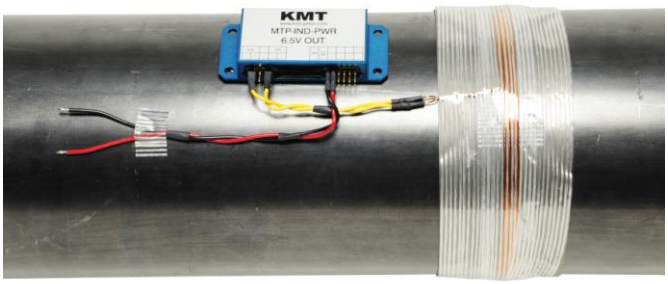
Make power coil with 3-18 windings for 1000-20mm diameter (see diagram) and twisted the end of wire.
Use 0.63…1.00 mm (1.00mm for diameter of 100-1000mm) CUL wire (Enamelled copper wire)



Solder the end of the wire on the AC IN of the IND-PWR module and isolate all solder points with shrink tubing.

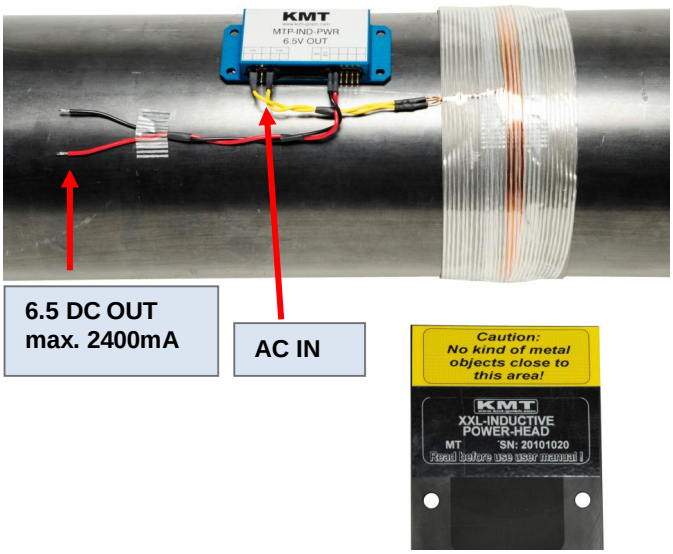


Fixed with 3 layers mounting tape



Note: “The inductive load of the MTP- IND-PWR and the capacitor in the Power Head must be in resonance to get the optimal transmission. The inductive load of the shaft depends of diameters, material and number of windings!

Control the output voltage and move the power-head in the max distance to the coil.
The output voltage must be 6.5 V!

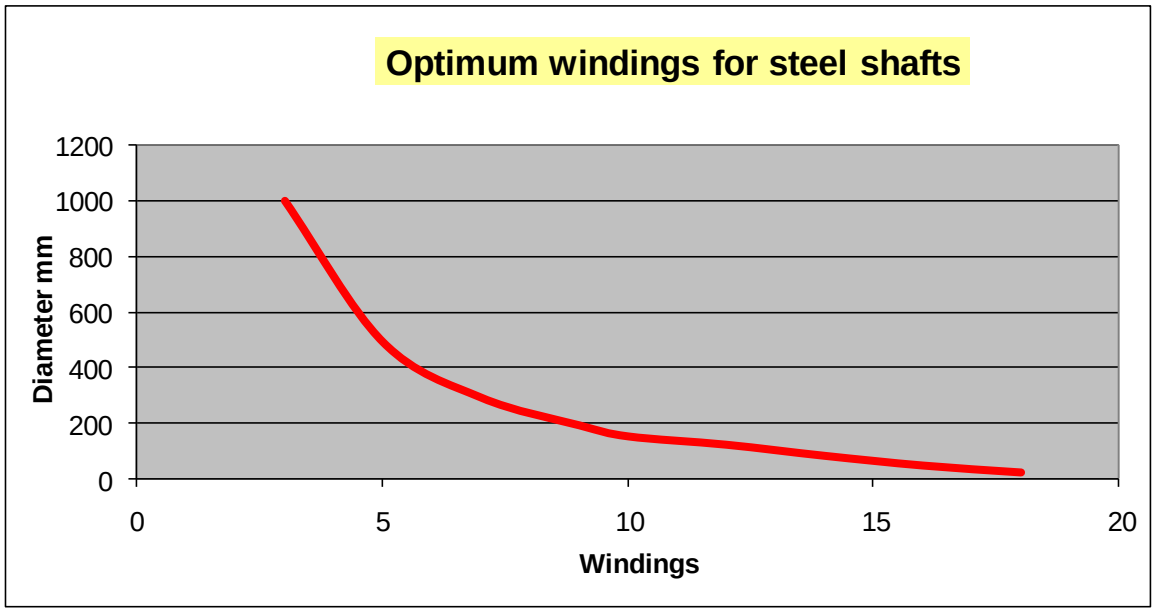


The pins “Coil” are the AC power input from the coil. On the pins “+6.5” and “GND“ you get a stabilized output voltage of 6.5V DC.
The max. load current on the DC output is 2400mA.
The IND-PWR converter will use instead battery pack!
Never use any battery together with the MTP-IndPwr!

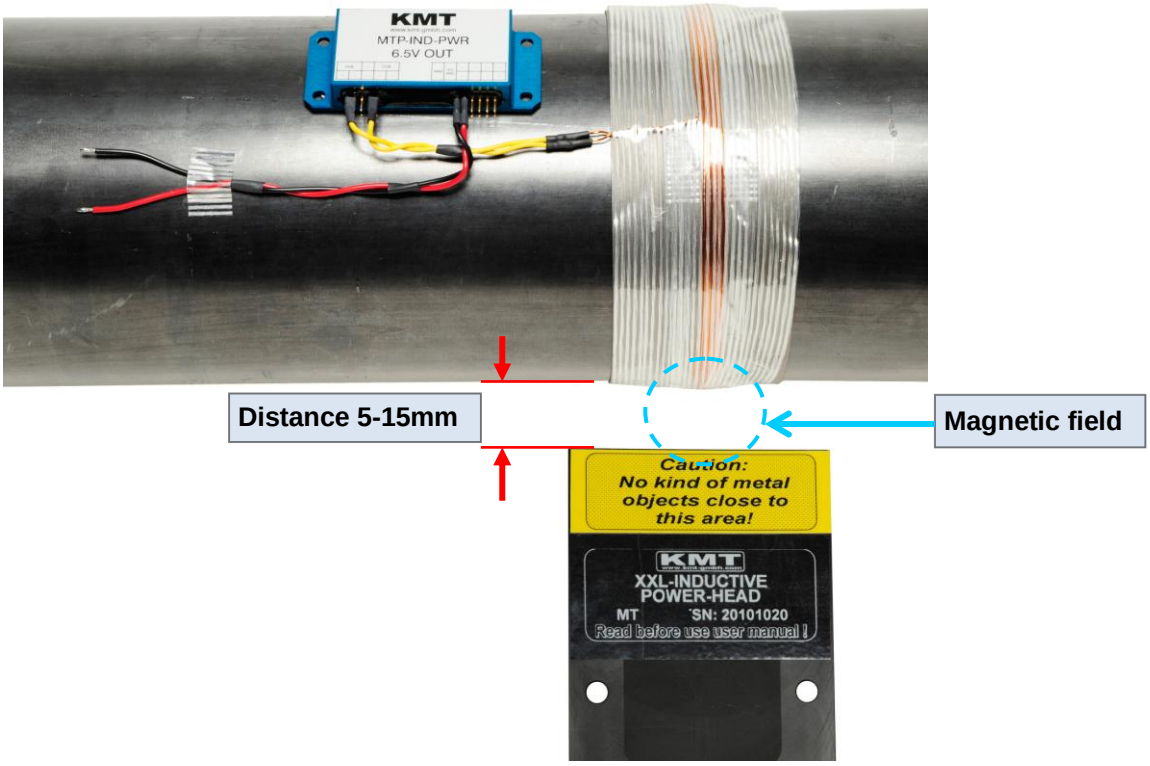
You should mount the power head at a fixed location that it’s as free as possible from vibration influences.

The center of the coil should be in the same horizontal position as the center of the power head. The distance is optimal in the range between 5 and 10mm. (depends of shaft and current consumption)

Find the correct amount of windings of inductive power coil



Windings	Diameter (mm)
3	1000
5	490
7	290
9	190
10	150
12	120
14	80
16	45
18	20



Distance dependent of current consumption e.g. 2000mA at 5-10mm, 500mA at 10-15mm

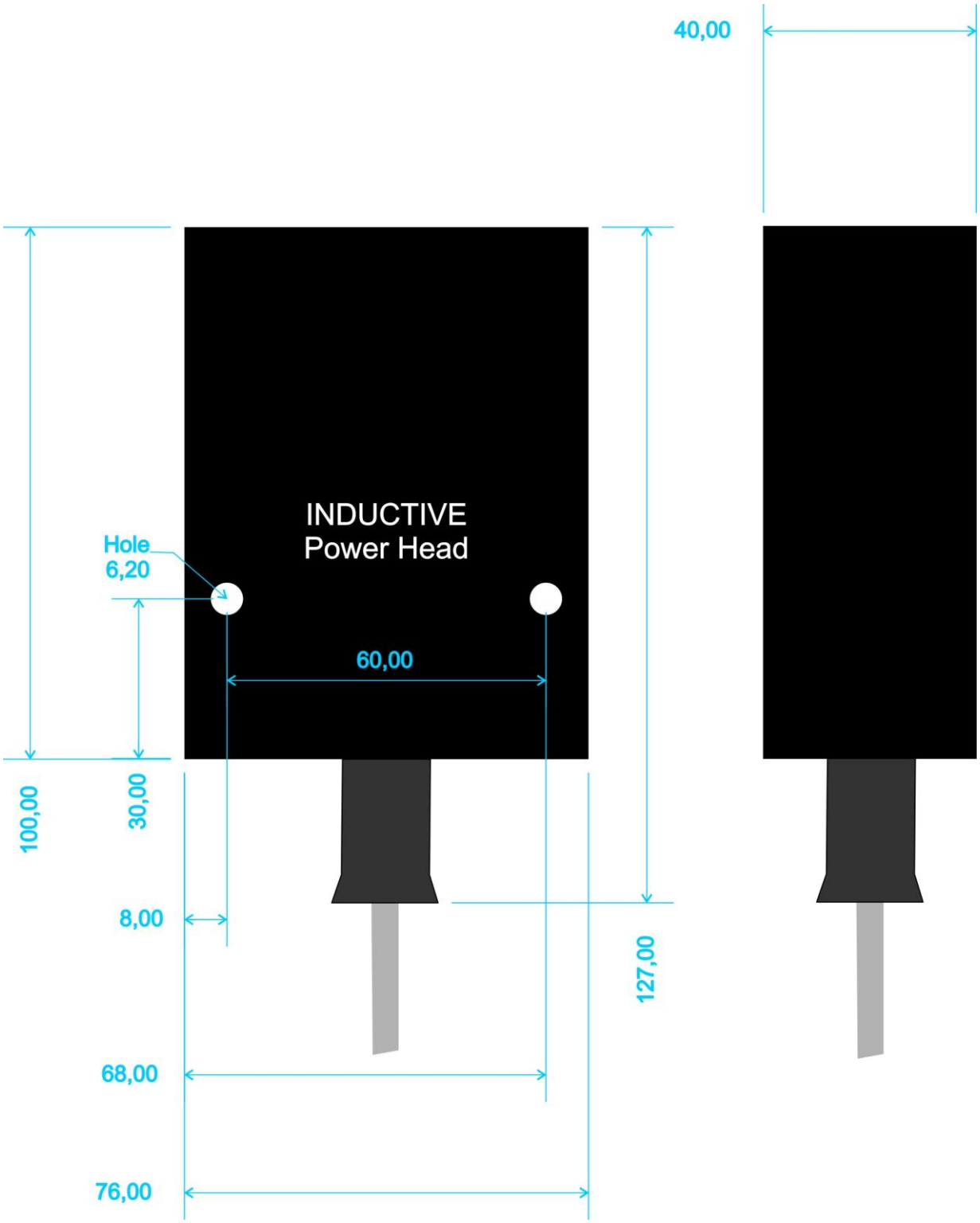
Recommend power heads:				
Diameter:	150mm	300mm	500mm	1000mm
4 - Channel	XL	XL	XL	XXL
8 - Channel	XL	XL	XXL	XXXL
16 - Channel	XL	XXL	XXXL	XXXL
32 - Channel	XXL	XXXL	XXXL	On request

IND-PWR-HEAD-XL and XXL

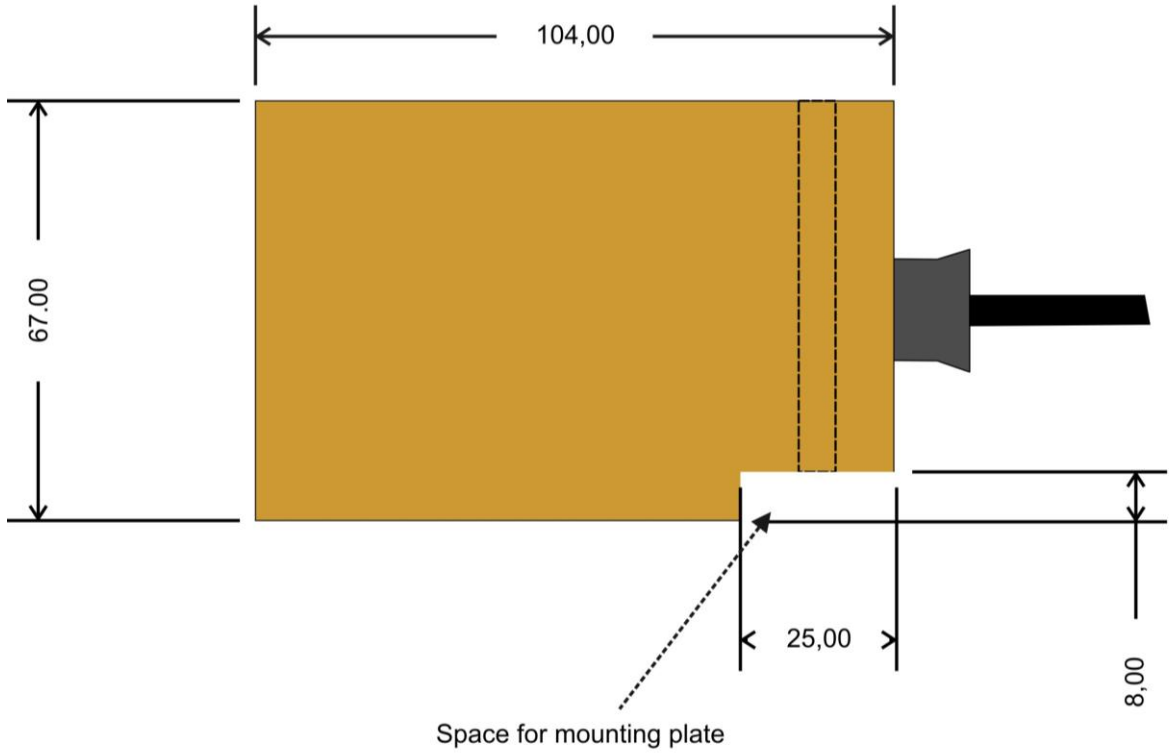
IND-PWR-HEAD-XXXL

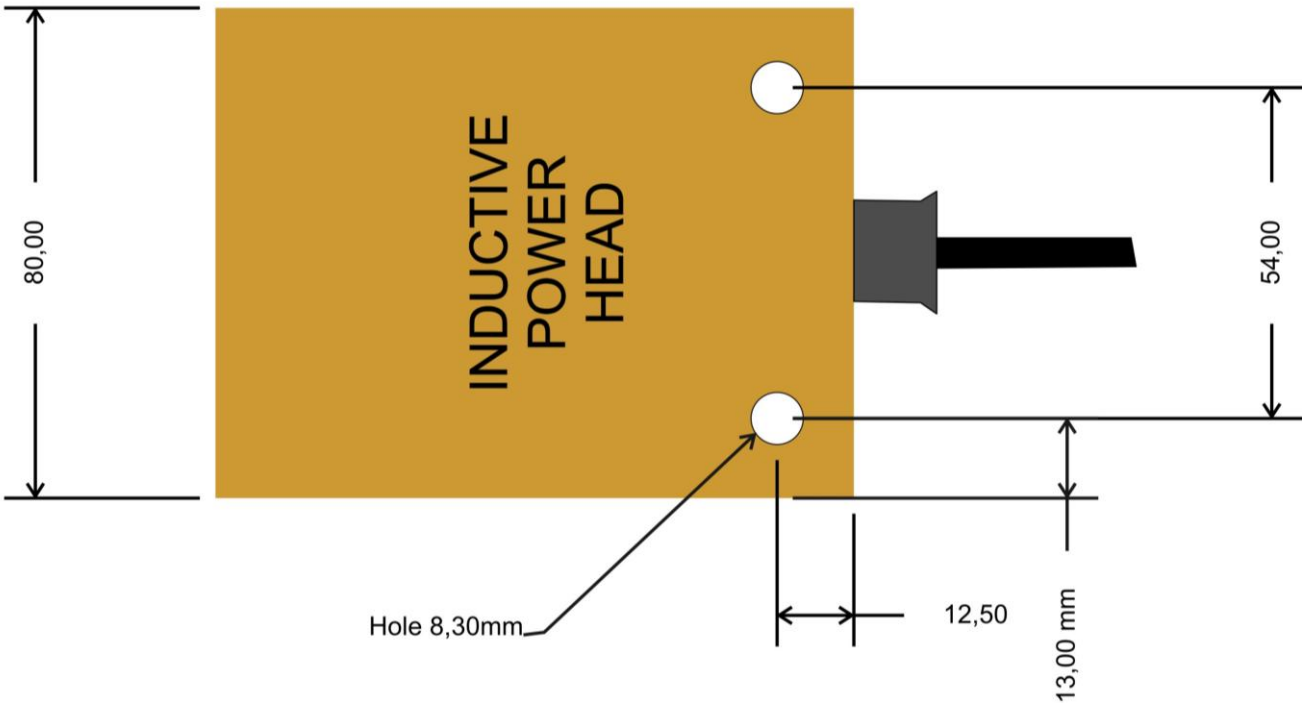
Caution for use of XXL and XXXL power heads!
Cable must unrolled for use, otherwise it will warm up!

Dimensions of IND-PWR-HEAD- XL and XXL

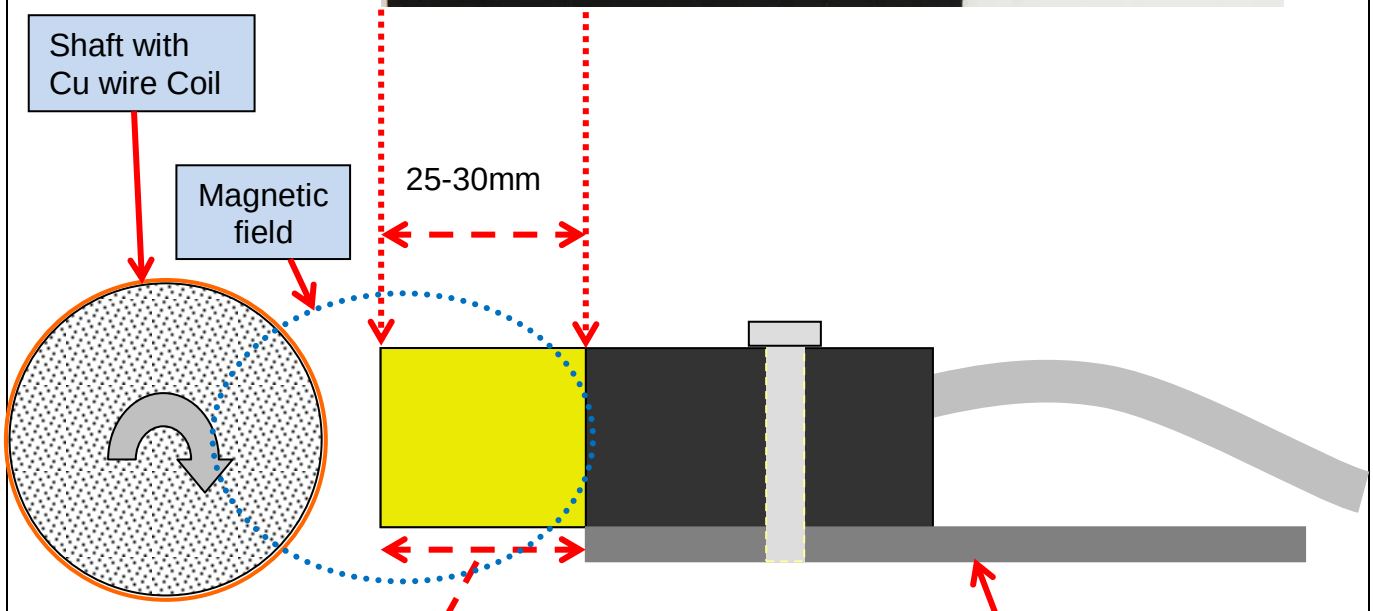


Dimensions of IND-PWR-HEAD-XXXL



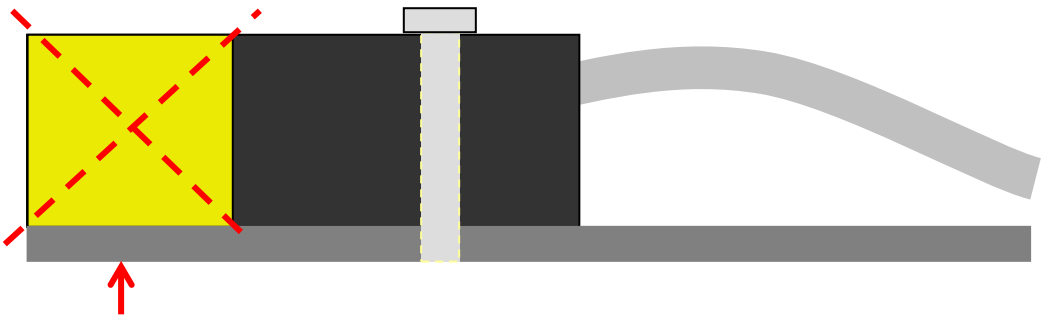


MTP-IND-PWR
Following must be considered at the mounting of the inductive power head



Don't use for mounting any kind metal in this area (25-30mm)! Otherwise magnetic energy will flow in the metal and decrease the distance between power head and coil (on shaft)!

Example of mounting



Wrong!!! Mounting (only if metal) plate cover the active area of

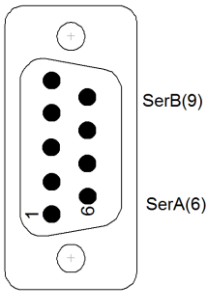
IND-Power generator for L, XL, XXL and XXXL Powerhead

Technical data

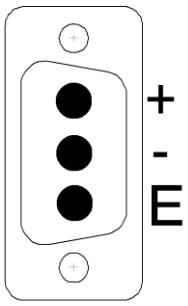
Power output:	AC 25-35kHz for power head L, XL, XXL and XXXL
Power input:	10-30 V DC, typical 24V
Power consumption	<100 Watt, deepens of power head
Dimensions:	205 x 105 x 65mm
Weight:	1.275 kg
Environmental	
Operating:	-20 … +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g Mil Standard
Static acceleration:	10g in all directions
Shock:	50g in all directions

MTP-IND-PWR-XXL
Pin connection

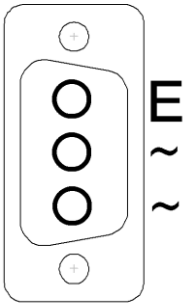
RS 485



CONTROL - Not used!



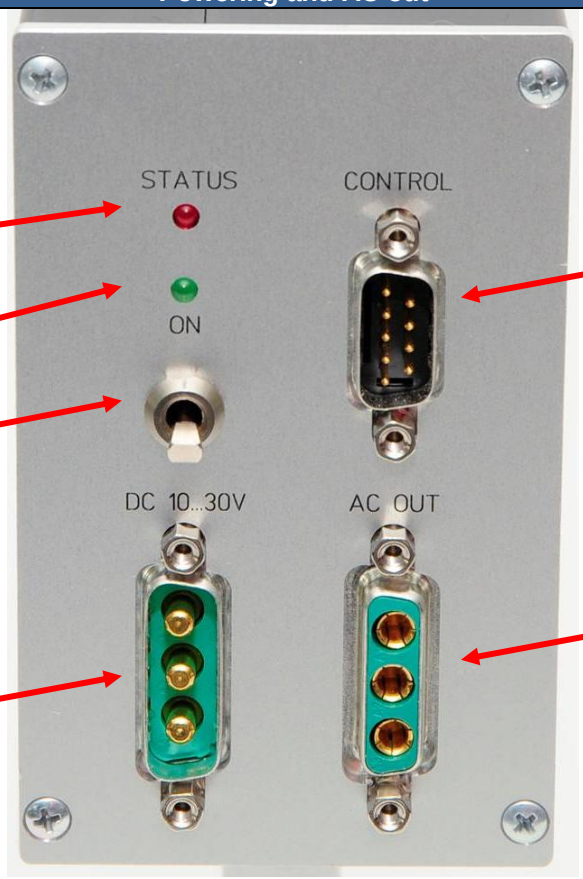
DC 10-30V
typical 24V
(up to 100 WATT*



AC 25-35kHz output
power head
*** deepens of power head)**

E= have no function

Powering and AC out



LED flashing = auto adjustment
LED ON = finish
ON= Inductive resonance freq. of power head reached!
Can take up to 20sec.!

Power control LED

Power Switch

Power INPUT
DC 10-30V
typical 24V
(up to 100WATT*)

Control out of function

AC 25-35kHz output for power head

KMT - Kraus Messtechnik GmbH

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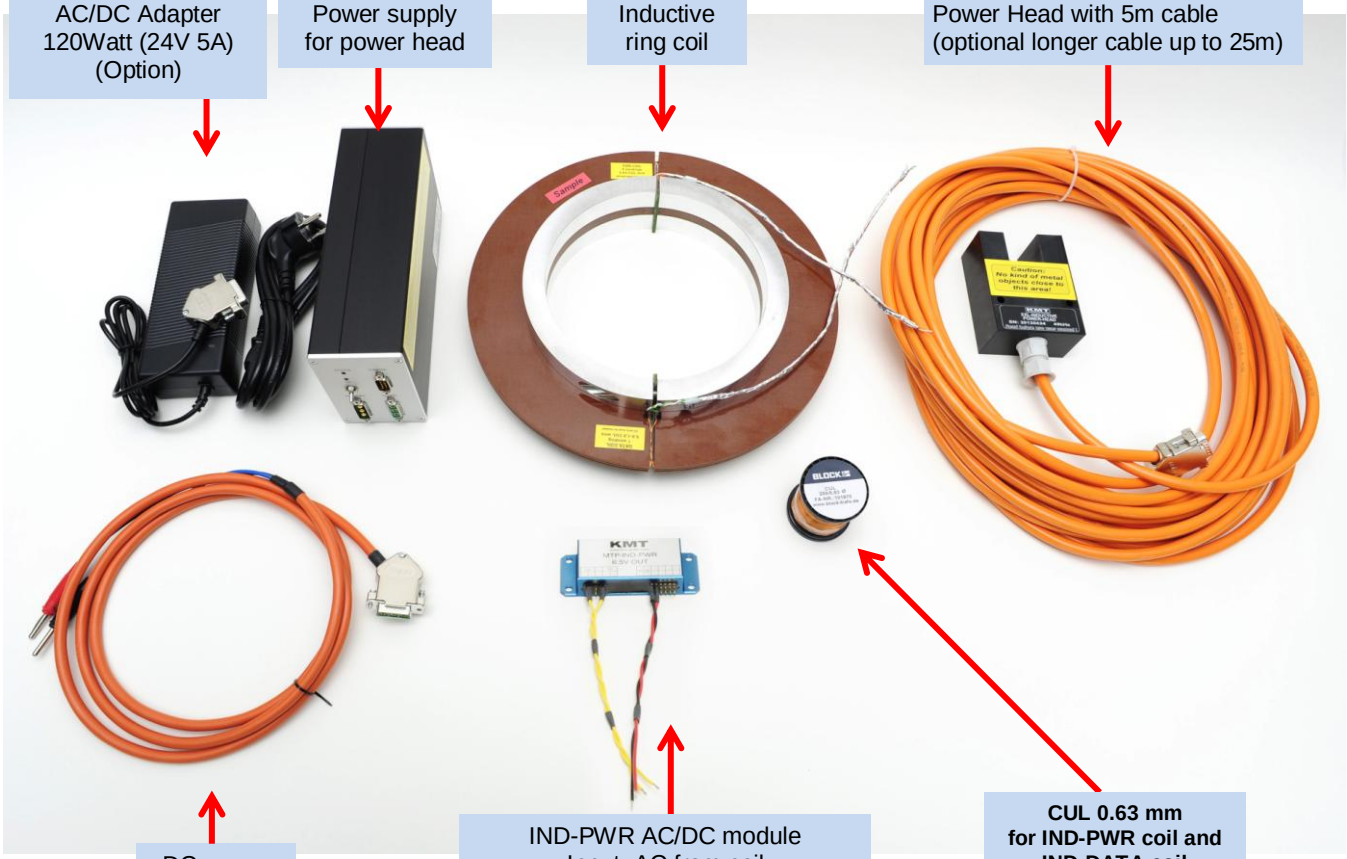
Home Page http://www.kmt-telemetry.com, Email: info@kmt-telemetry.com

MTP
INDUCTIVE POWER
with RING COIL
User Manual

Inductive power supply set


AC/DC Adapter 120Watt (24V 5A) (Option)
Power supply for power head
Inductive ring coil
Power Head with 5m cable (optional longer cable up to 25m)
DC power cable
IND-PWR AC/DC module
Input: AC from coil
Output 5VDC max. 1000mA
CUL 0.63 mm
for IND-PWR coil and
IND-DATA coil
(Enamelled copper wire)

INSTRUCTIONS FOR QUALIFIED PERSONNEL ONLY!

Safety notes for inductive powering

- The device should only applied by instructed personnel.
- The power head emits strong magnetic radiation at 30-60 kHz to a distance of 300 mm. Therefore persons with cardiac pacemakers should not work with this device!
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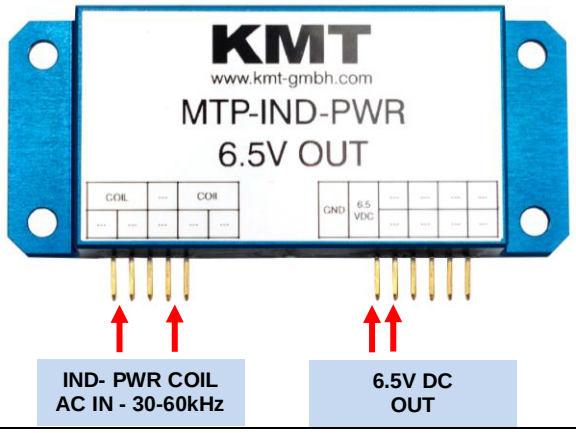
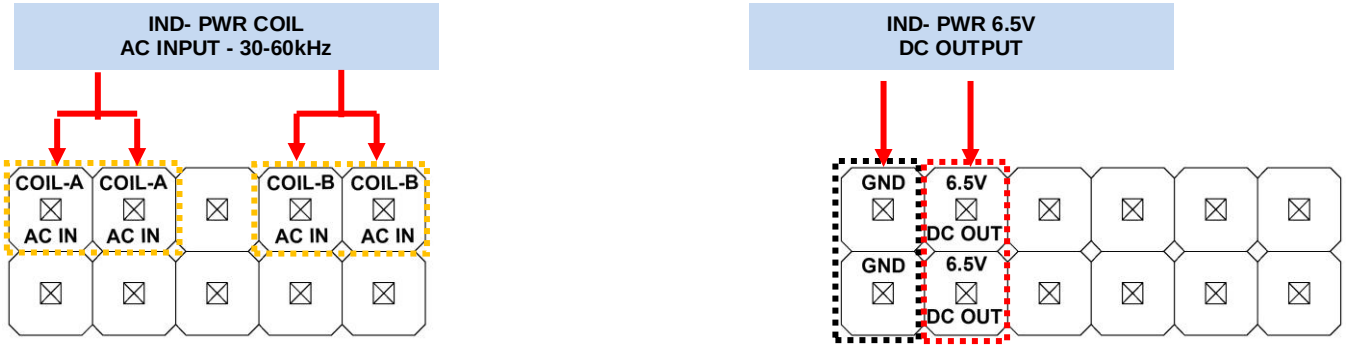
- Do not use damaged or faulty cables!
- Never touch in the area between shaft and inductive head, the rotating shaft itself or rotor electronic contacts during operation!
- This is a “Class A” system suitable for operation in a laboratory or industrial environment. The system can cause electromagnetic interferences when used in residential areas or environments. In this case the operator is responsible for establishing protective procedures.

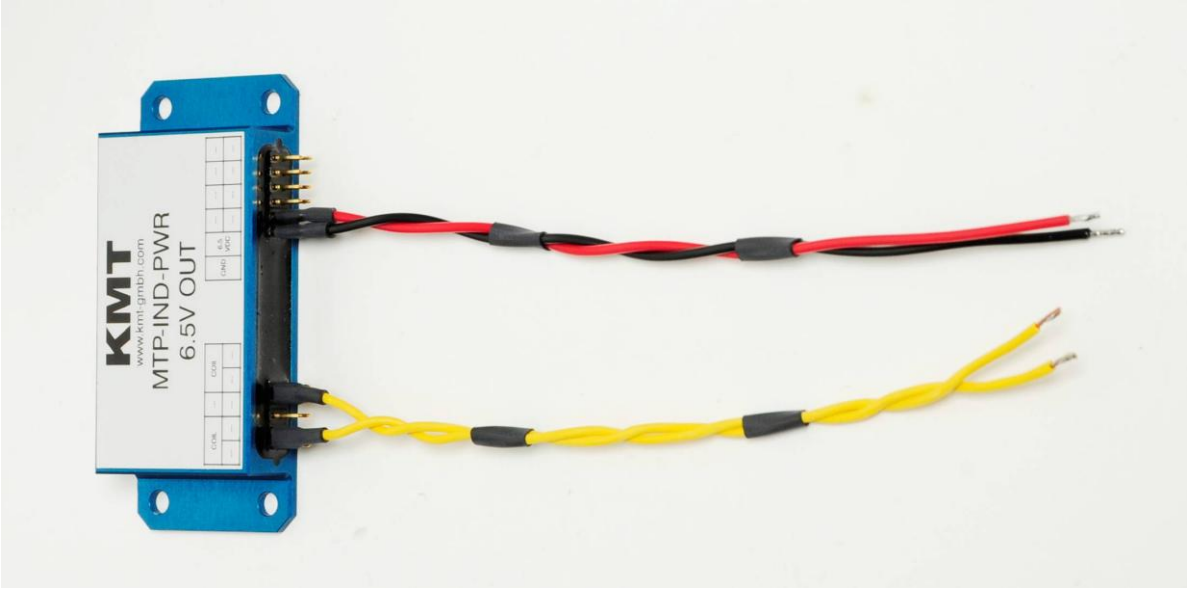
MTP-IND-PWR - AC/DC Module for inductive power



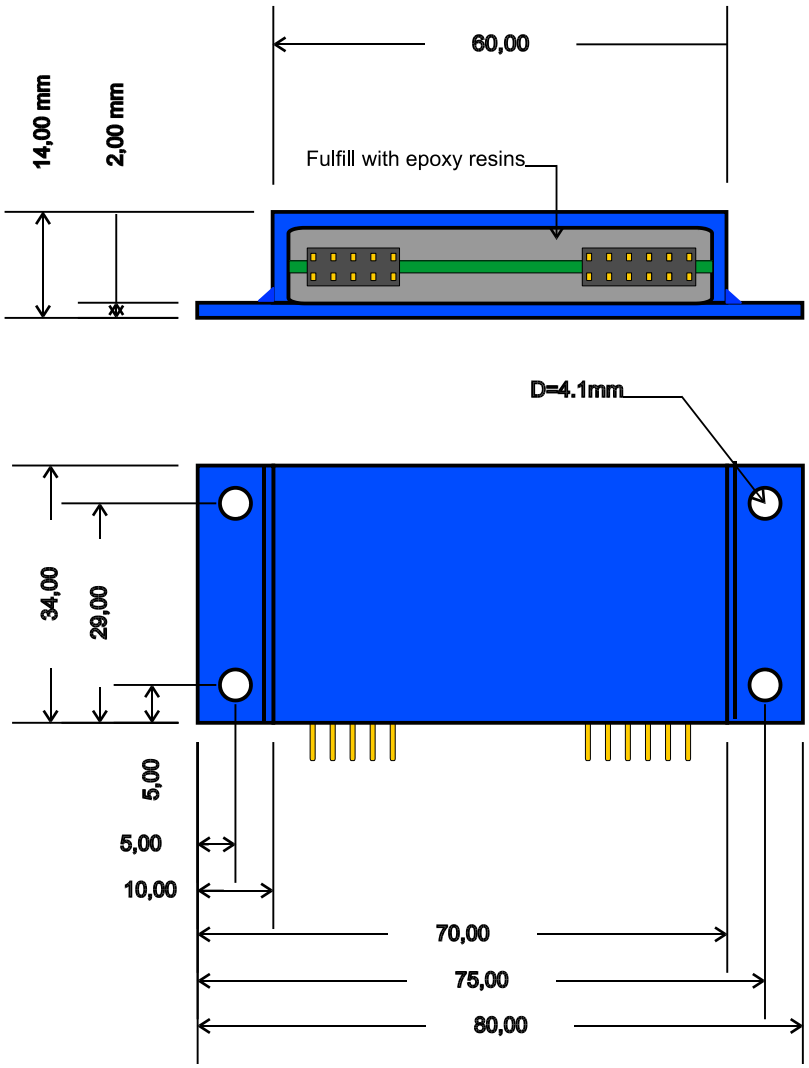
MTP-IND-PWR
AC/DC Module for inductive power
Input: 30-60kHz 10-60V AC
Can also power with DC 12-24V (Input on COIL / COIL)
Output: 6.5 DC
Current: up to 2400mA
Weight: 60 gram
Vibration: 5g
Shock: 3000g

Control pin assignment



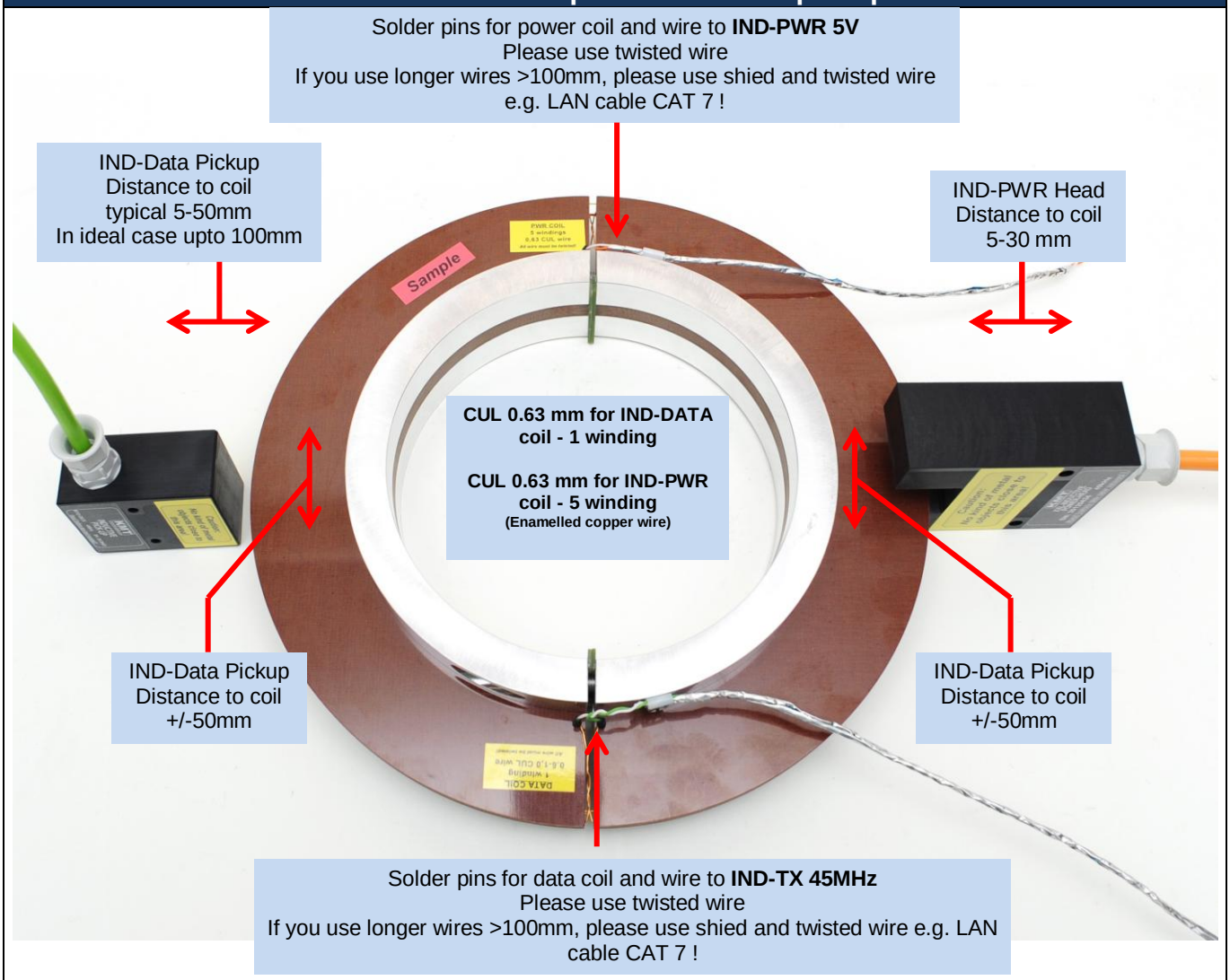


MTP-IND-PWR housing - dimensions



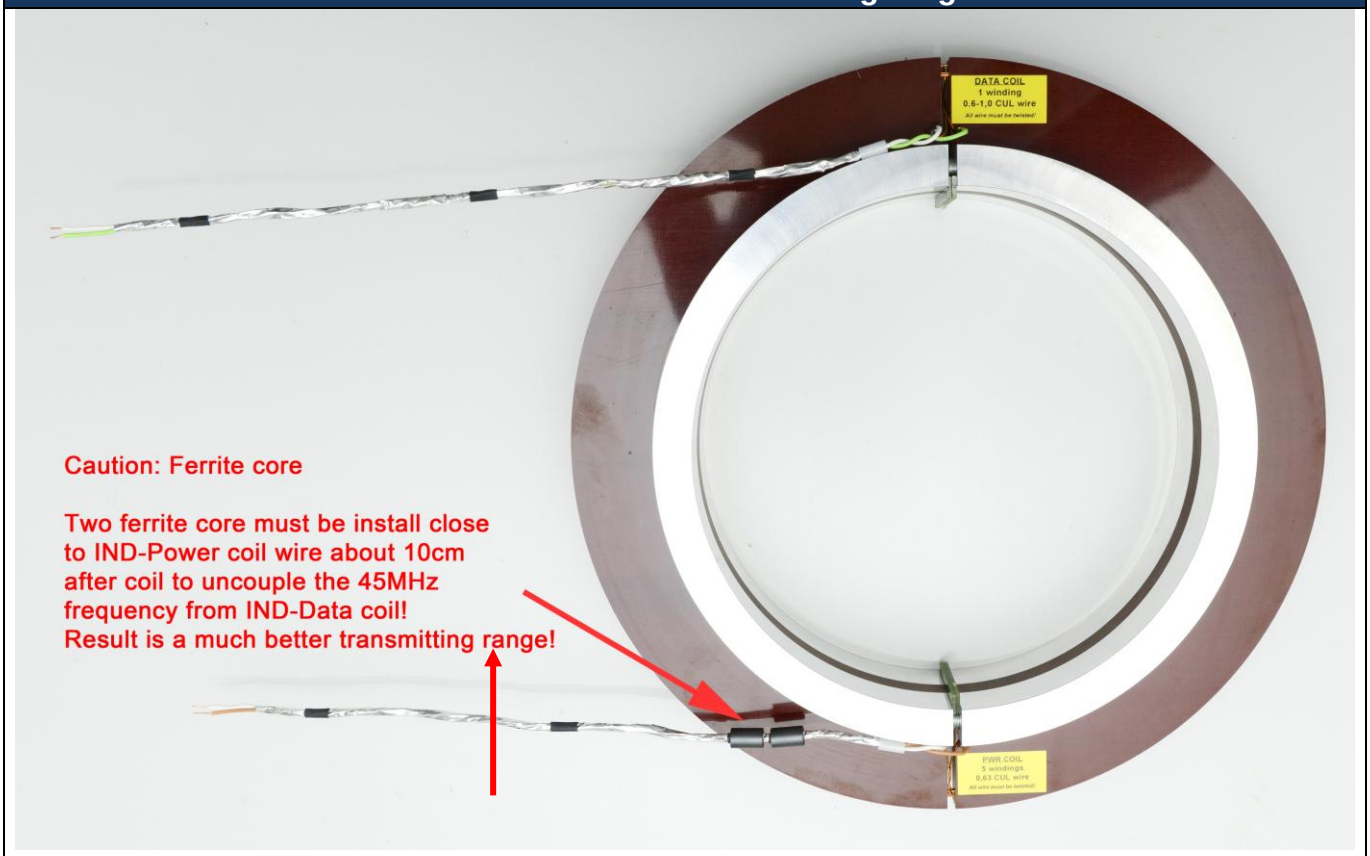
Weight about 60 grams

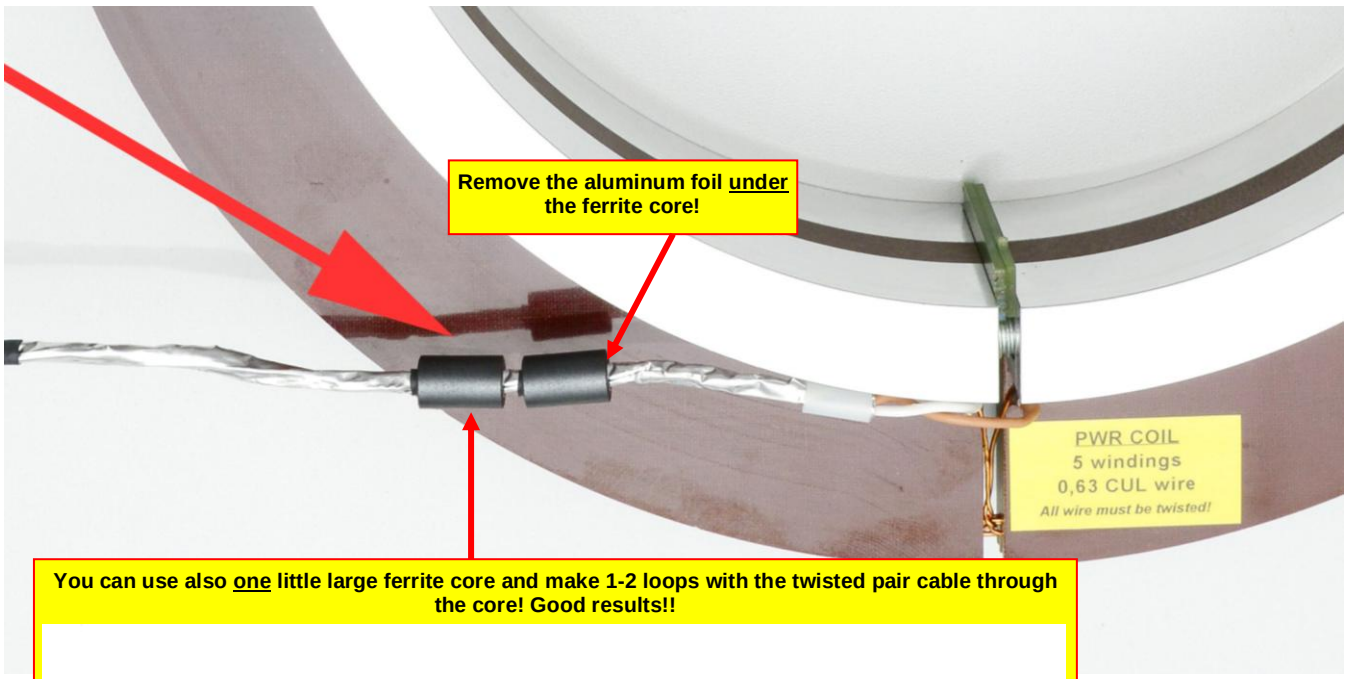
Inductive power supply
RING COIL - Distance power head and pickup head


Solder pins for power coil and wire to **IND-PWR 5V**
Please use twisted wire
If you use longer wires >100mm, please use shied and twisted wire
e.g. LAN cable CAT 7 !
IND-Data Pickup
Distance to coil
typical 5-50mm
In ideal case upto 100mm
IND-PWR Head
Distance to coil
5-30 mm
Sample
CUL 0.63 mm for IND-DATA coil - 1 winding
CUL 0.63 mm for IND-PWR coil - 5 winding
(Enamelled copper wire)
IND-Data Pickup
Distance to coil
+/-50mm
IND-Data Pickup
Distance to coil
+/-50mm
Solder pins for data coil and wire to **IND-TX 45MHz**
Please use twisted wire
If you use longer wires >100mm, please use shied and twisted wire e.g. LAN cable CAT 7 !

Data cable CAT. 7A S/FTP 4P AWG22 (= solid bare copper wire 0.64mm-diameter) recommend
or
Data cable CAT. 7 S/FTP 4P AWG23 (= solid bare copper wire 0.55mm-diameter)

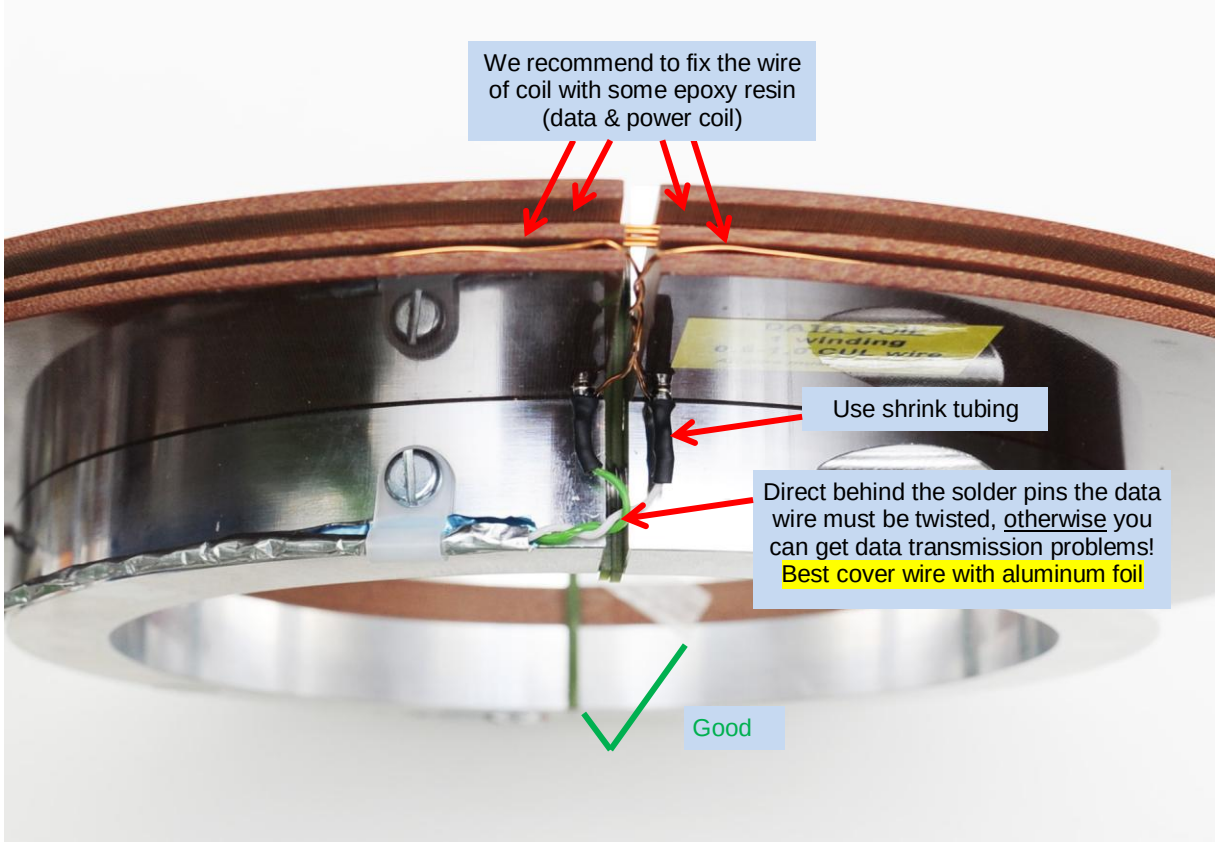
RING COIL – uncouple the 45MHz frequency from inductive data coil with ferrite core filter to reach better transmitting range!

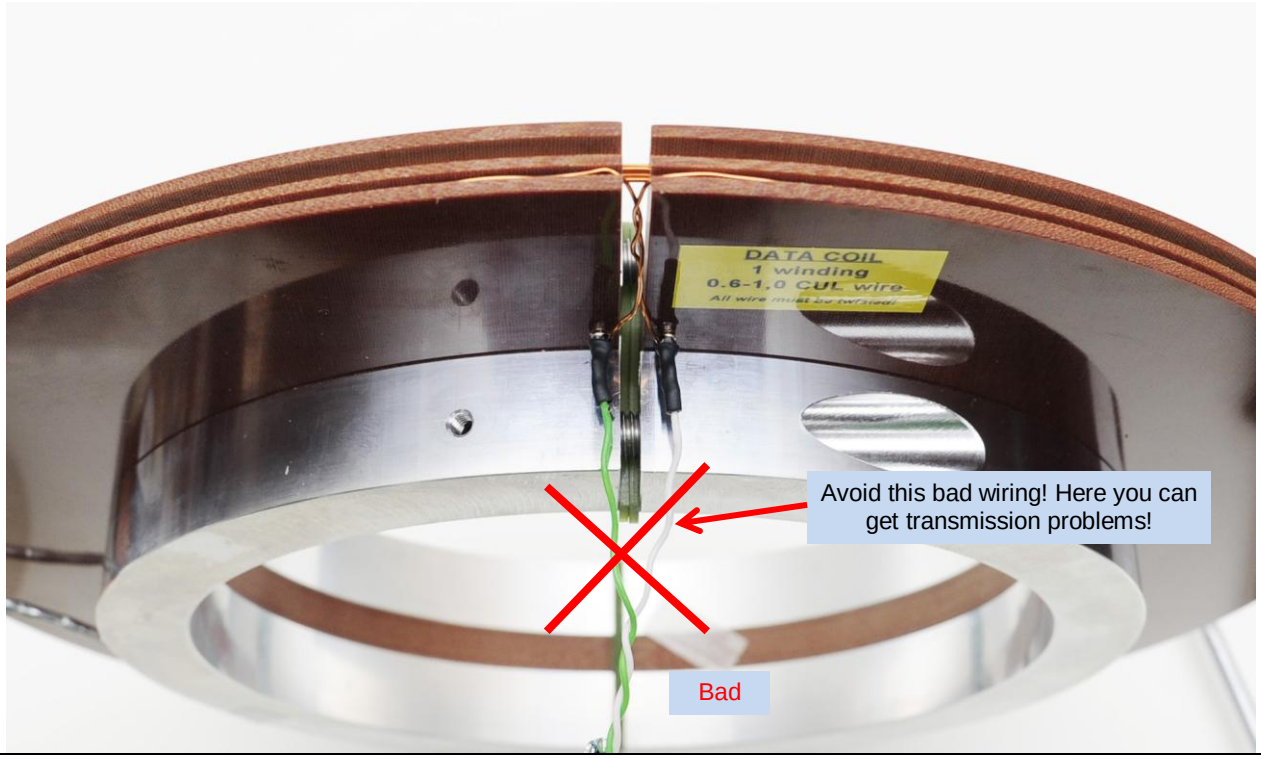

DATA COIL
1 winding
0,6-1,0 CUL wire
All wire must be twisted!
Caution: Ferrite core
Two ferrite core must be install close to IND-Power coil wire about 10cm after coil to uncouple the 45MHz frequency from IND-Data coil!
Result is a much better transmitting range!
PWR COIL
5 windings
0,63 CUL wire
All wire must be twisted!



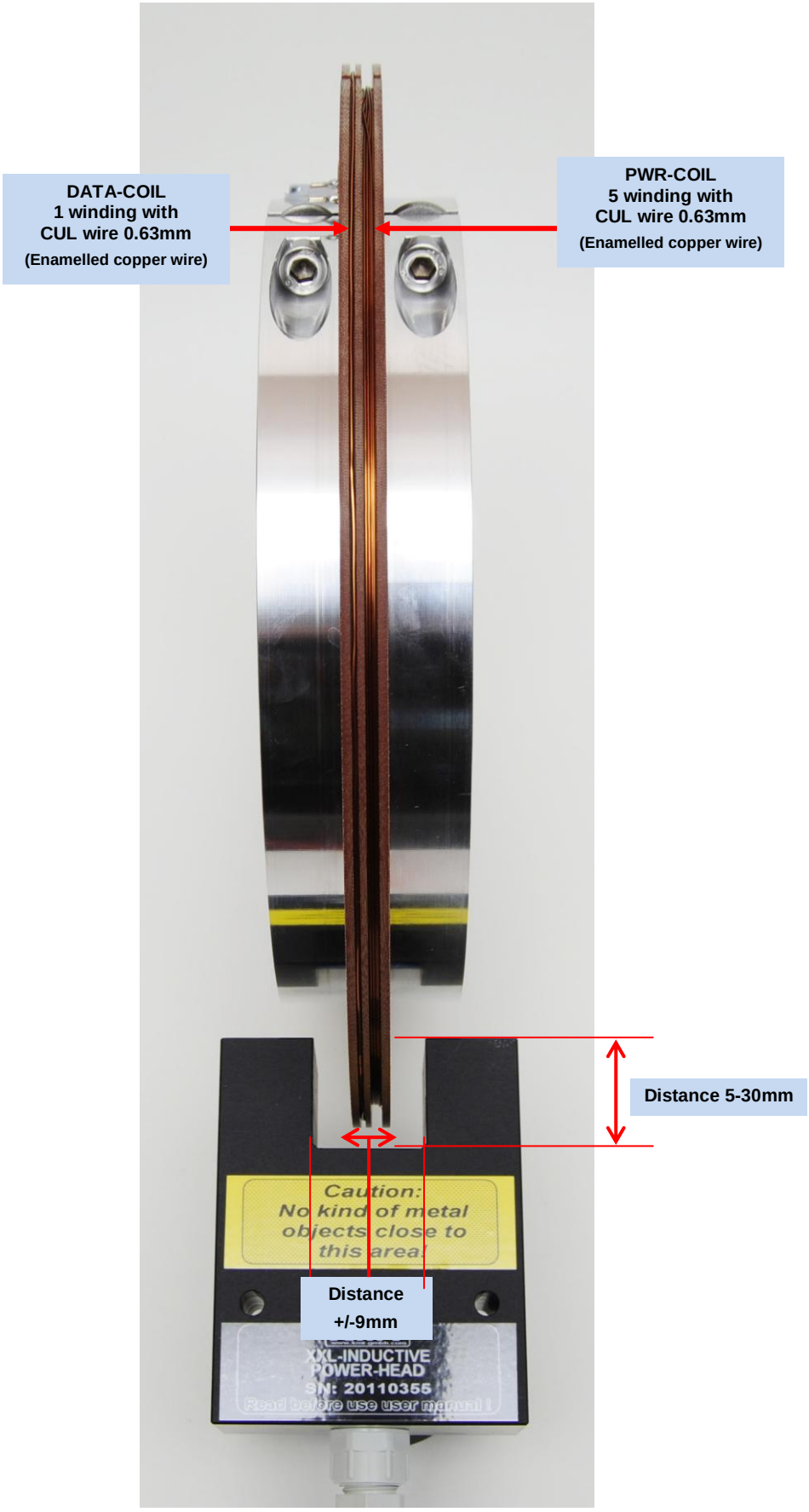
You can use also <u>one</u> little large ferrite core and make 1-2 loops with the twisted pair cable through the core! Good results!!

Inductive power supply
RING COIL – wire connection

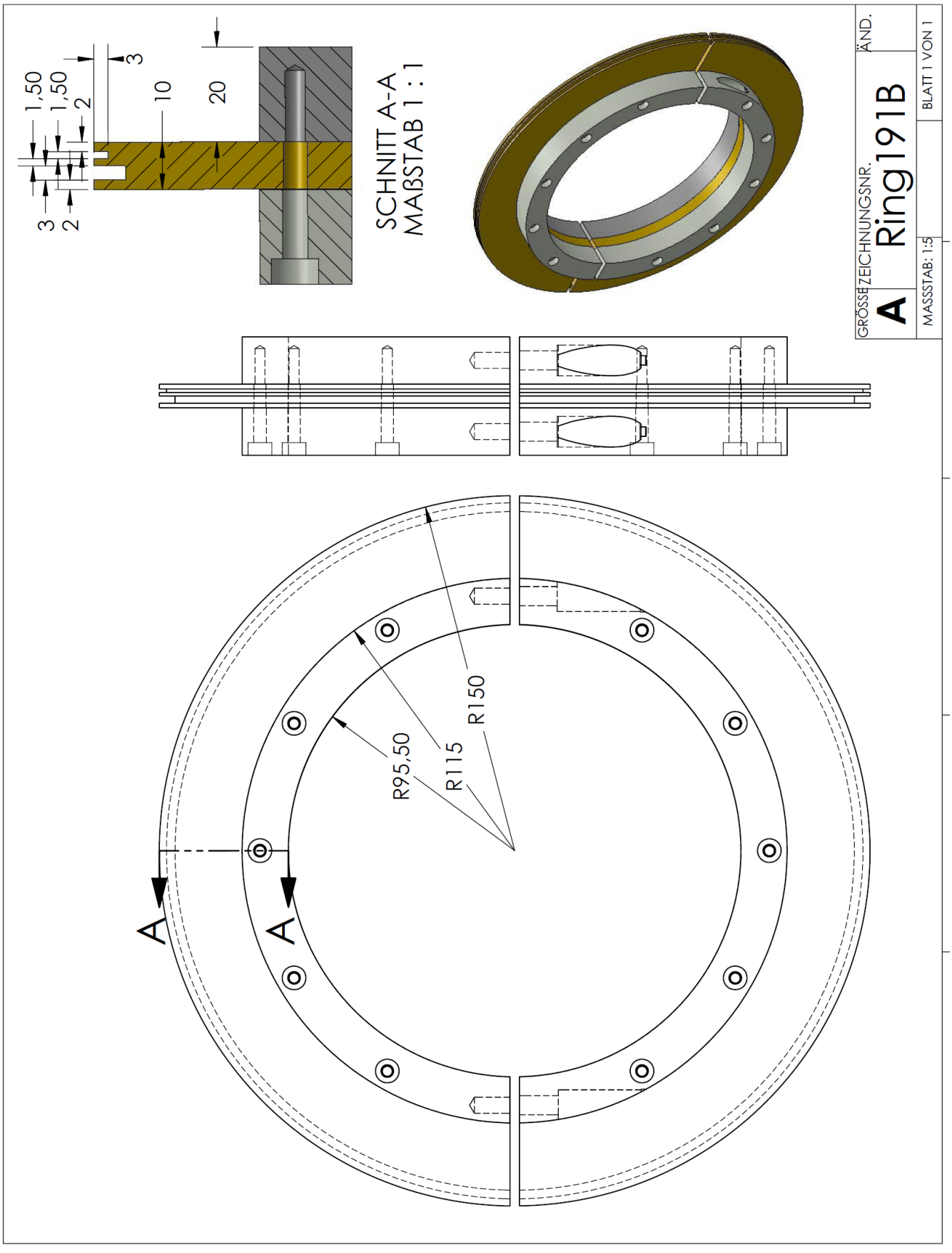

We recommend to fix the wire of coil with some epoxy resin (data & power coil)
Use shrink tubing
Direct behind the solder pins the data wire must be twisted, otherwise you can get data transmission problems!
Best cover wire with aluminum foil
Good



Inductive power supply
RING COIL – Distance power head

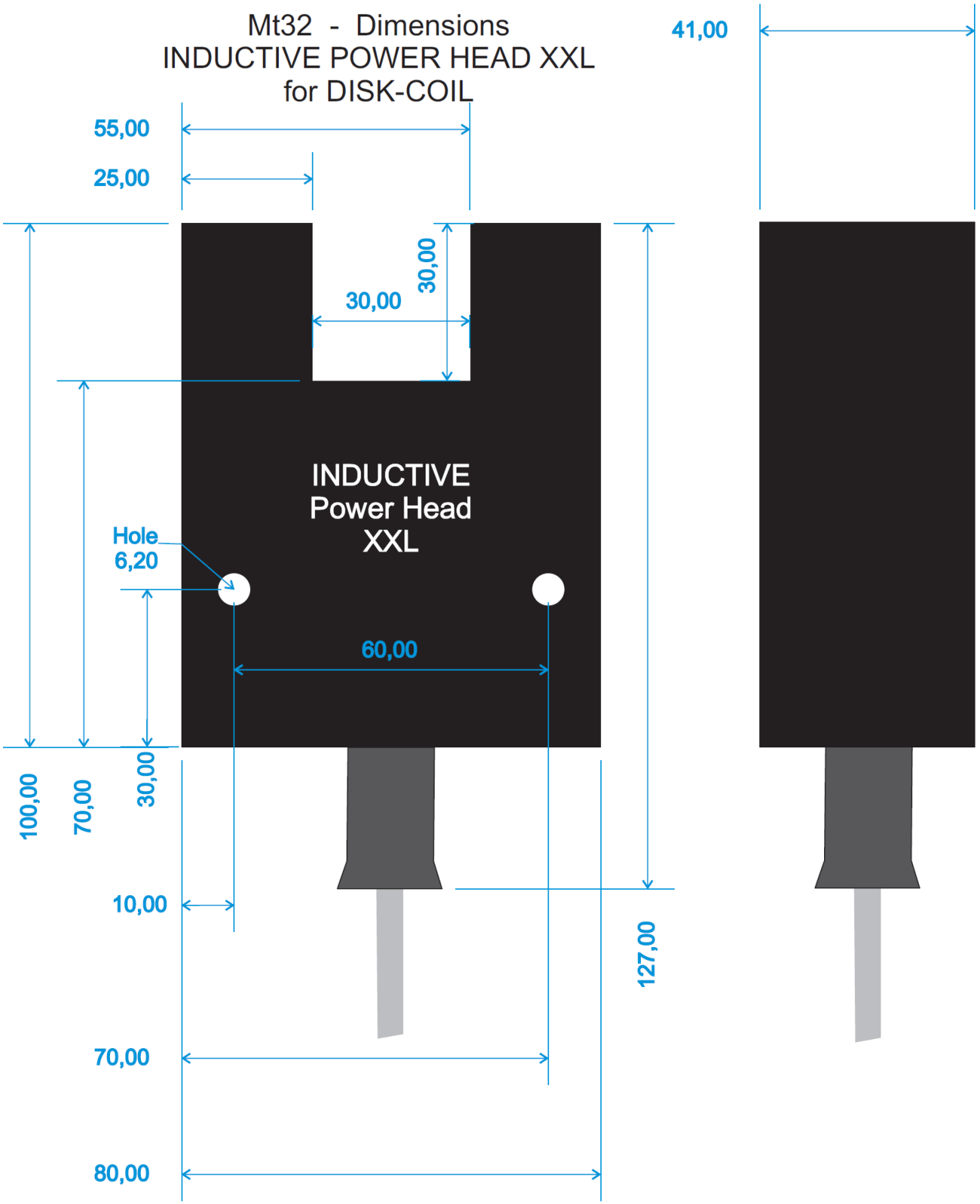


Inductive power supply
Example of a RING COIL with inner diameter 191mm



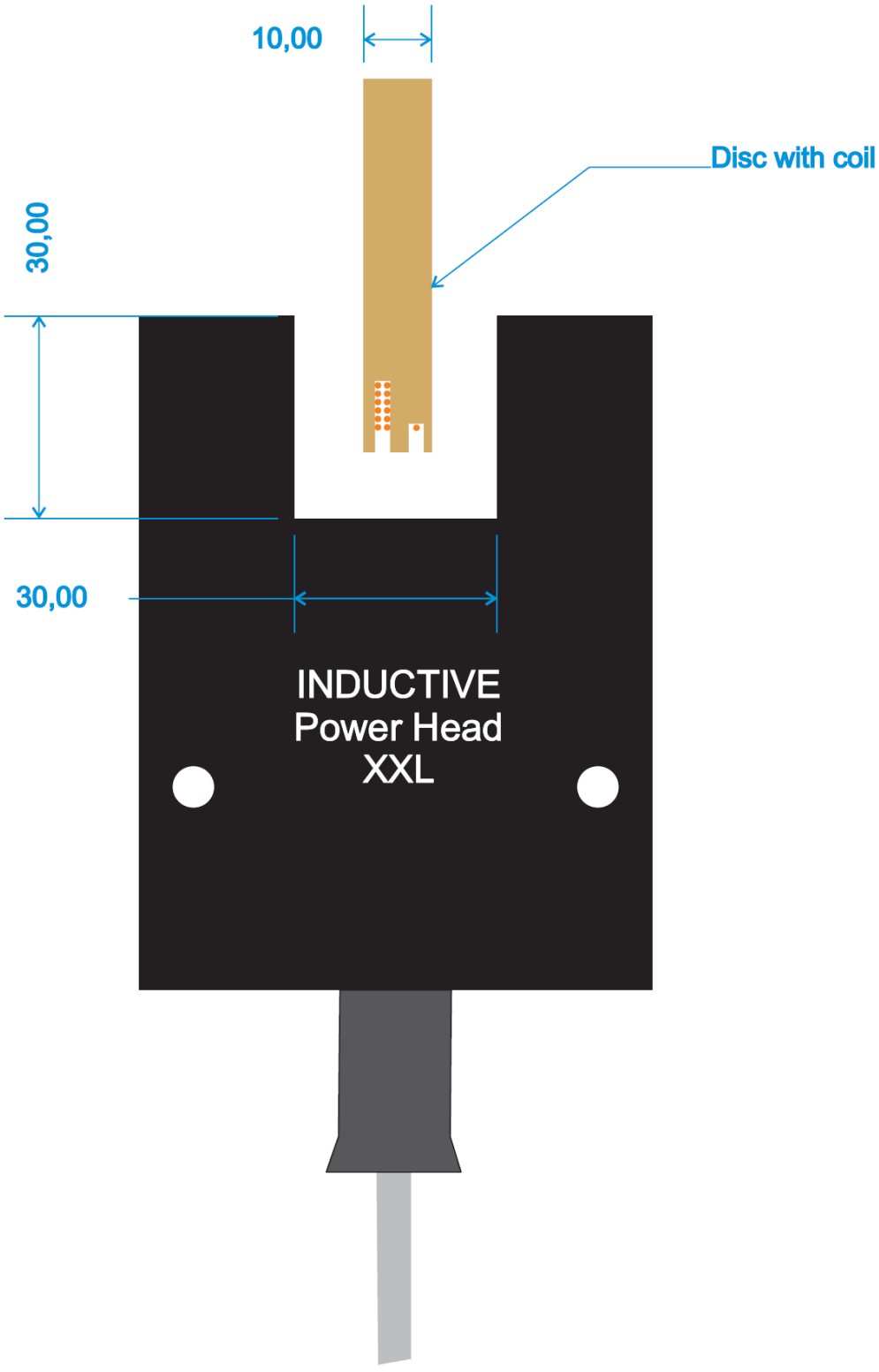
Technical Data are subject to change without notice!

Dimensions of IND-PWR-HEAD-XXL



Dimensions of IND-PWR-HEAD-XXL

MT32 - Dimensions
INDUCTIVE POWER HEAD XXL
Coil distances



IND-PWR-HEAD-XXL

Caution for use of power heads!
Cable must unrolled for use, otherwise it will warm up!